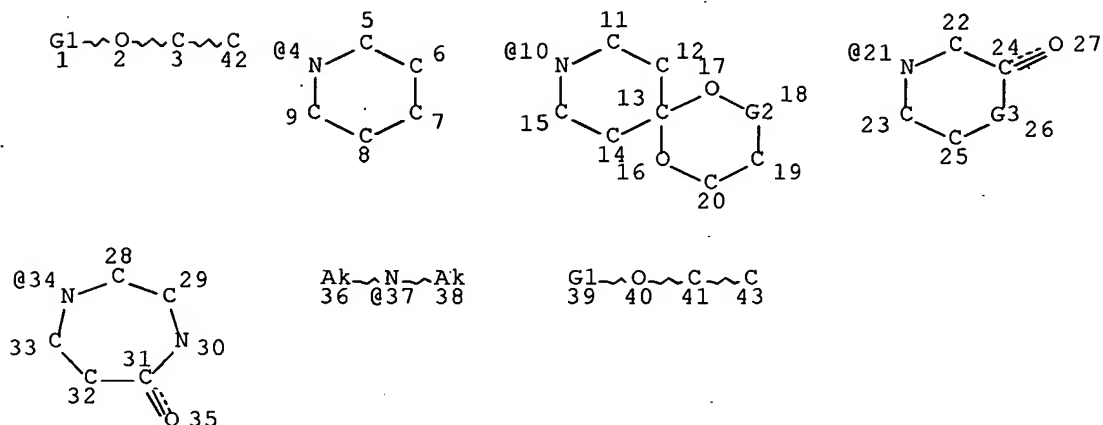


=> d que 167

L1 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US20050215691/PN
 L5 STR



VAR G1=4/10/21/34/37

REP G2=(0-1) CH2

VAR G3=O/N

NODE ATTRIBUTES:

NSPEC IS RC AT 42

NSPEC IS RC AT 43

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

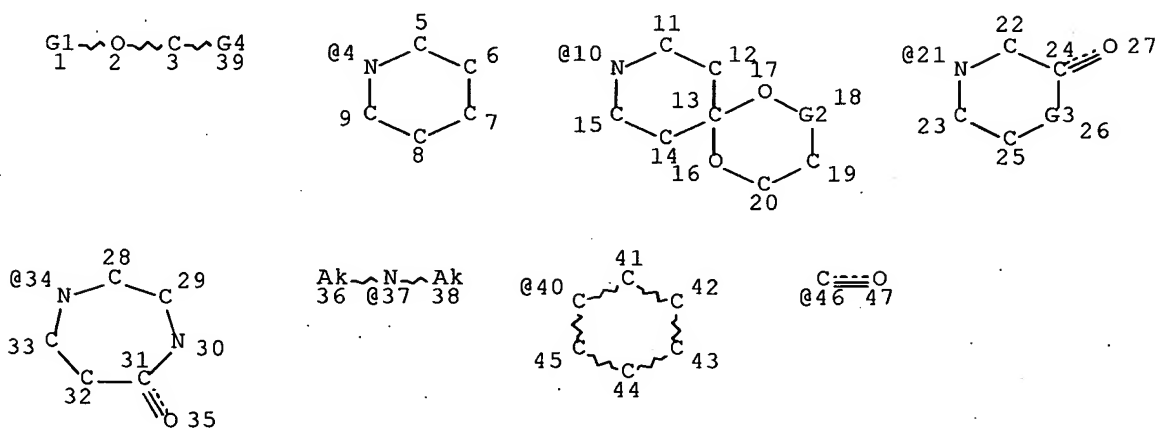
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 43

STEREO ATTRIBUTES: NONE

L9 STR



VAR G1=4/10/21/34/37

REP G2=(0-1) CH2

VAR G3=O/N

VAR G4=46/40

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

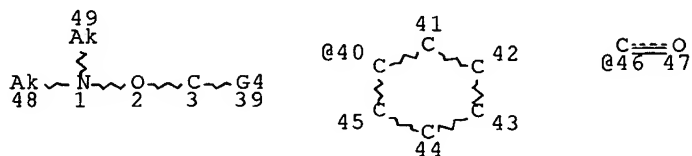
NUMBER OF NODES IS 47

STEREO ATTRIBUTES: NONE

L11 7221 SEA FILE=REGISTRY SSS FUL L9

L14 694 SEA FILE=REGISTRY SUB=L11 SSS FUL L5

L17 STR



VAR G4=46/40

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CONNECT IS E1 RC AT 48

CONNECT IS E1 RC AT 49

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

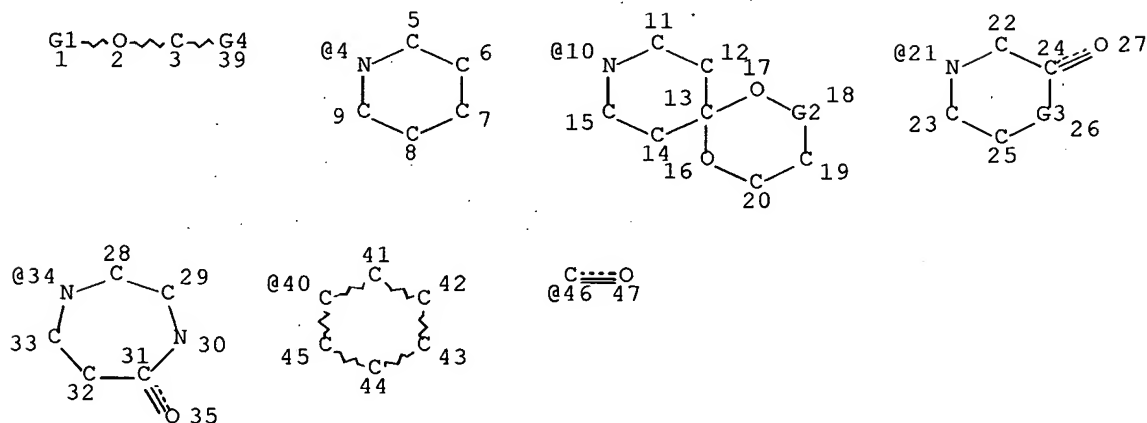
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE

L19 240 SEA FILE=REGISTRY SUB=L11 SSS FUL L17

L21 STR



VAR G1=4/10/21/34

REP G2=(0-1) CH2

VAR G3=O/N

VAR G4=46/40

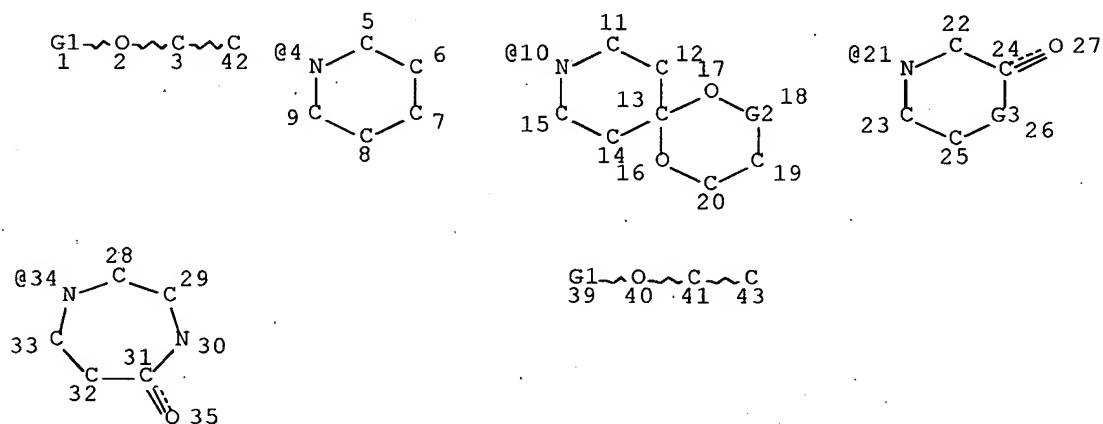
NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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 NUMBER OF NODES IS 44

STEREO ATTRIBUTES: NONE

L23 2091 SEA FILE=REGISTRY SUB=L11 SSS FUL L21
 L24 262 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L25 144 SEA FILE=HCAPLUS ABB=ON PLU=ON L19
 L29 209 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 (L) PREP/RL
 L32 74 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 AND (PLASTIC? OR
 POLYMER?)/SC, SX
 L33 60 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND (INITIAT? OR
 CATALYST? OR ACTIVAT?)
 L34 58 SEA FILE=HCAPLUS ABB=ON PLU=ON L33 NOT L19
 L35 STR



VAR G1=4/10/21/34

REP G2=(0-1) CH2

VAR G3=O/N

NODE ATTRIBUTES:

NSPEC IS RC AT 42

NSPEC IS RC AT 43

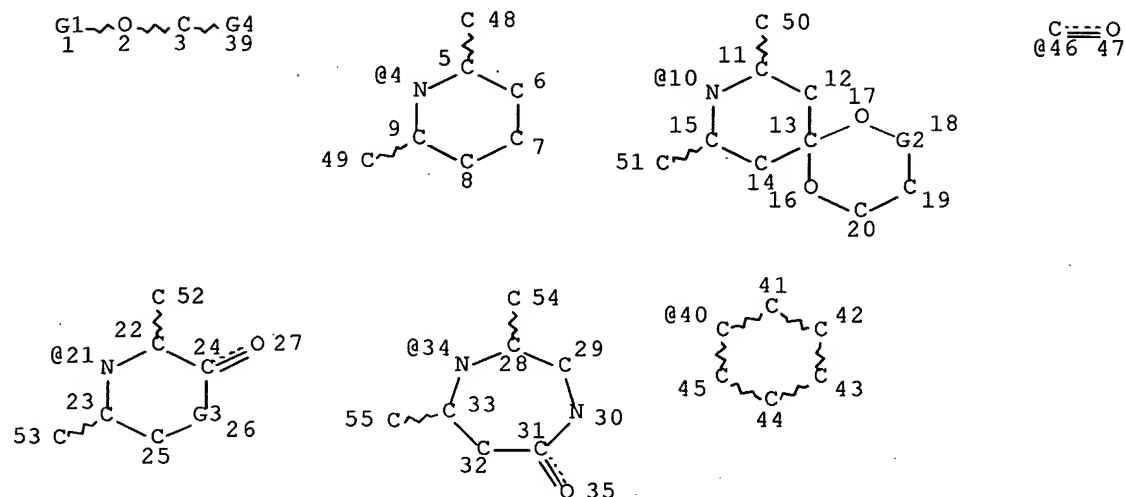
DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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 NUMBER OF NODES IS 40

STEREO ATTRIBUTES: NONE

L37 198 SEA FILE=REGISTRY SUB=L14 SSS FUL L35
 L38 96 SEA FILE=HCAPLUS ABB=ON PLU=ON L37
 L39 40 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND L38
 L42 STR



VAR G1=4/10/21/34

REP G2=(0-1) CH2

VAR G3=O/N

VAR G4=46/40

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 52

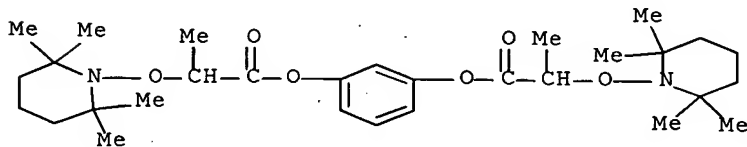
STEREO ATTRIBUTES: NONE

L44	1677	SEA FILE=REGISTRY SUB=L23 SSS FUL L42
L45	614	SEA FILE=HCAPLUS ABB=ON PLU=ON L44
L46	399	SEA FILE=HCAPLUS ABB=ON PLU=ON L45(L) PREP/RL
L47	271	SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND (PLASTIC? OR POLYMER?)/SC, SX
L48	208	SEA FILE=HCAPLUS ABB=ON PLU=ON L47 AND (INITIAT? OR CATALYST? OR ACTIVAT?)
L49	1	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L1
L50	2	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND CLAY?
L51	4	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND POF/RL
L52	174	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND CAT/RL
L53	6	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND MOA/RL
L54	15	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND (PEP OR PYP)/RL
L55	22	SEA FILE=HCAPLUS ABB=ON PLU=ON (L49 OR L50 OR L51) OR (L53 OR L54)
L56	13	SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND L46
L57	35	SEA FILE=HCAPLUS ABB=ON PLU=ON L55 OR L56
L58	6	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 AND ALKOXYAMINE INITIATOR?
L59	40	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 OR L58
L60	5	SEA FILE=HCAPLUS ABB=ON PLU=ON L57 AND ALKOXYAMINE INITIATOR?
L61	35	SEA FILE=HCAPLUS ABB=ON PLU=ON L57 OR L60
L62	26	SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND ALKOXYAMINE INITIATOR?
L63	26	SEA FILE=HCAPLUS ABB=ON PLU=ON L62 AND (PLASTIC? OR

POLYMER?)/SC, SX
 L64 56 SEA FILE=HCAPLUS ABB=ON PLU=ON L61 OR L63
 L65 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L38 AND ALKOXYAMINE
 INITIATOR?
 L66 40 SEA FILE=HCAPLUS ABB=ON PLU=ON L59 OR L65
 L67 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L64 AND L66

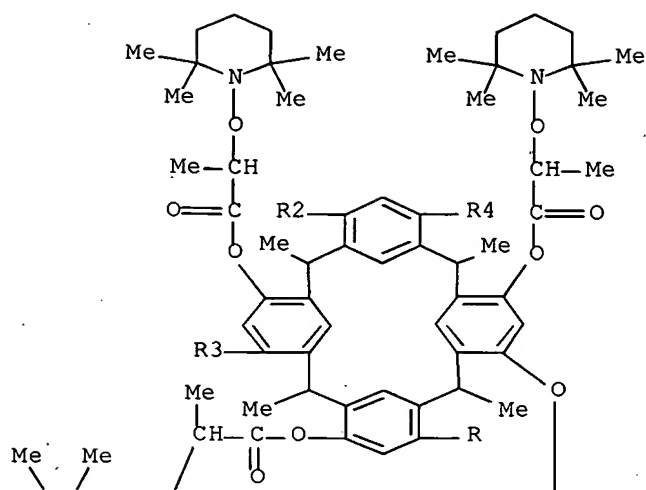
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L67 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2007:1437481 HCAPLUS Full-text
 DOCUMENT NUMBER: 148:215389
 TITLE: Synthesis of star polymers via nitroxide mediated
 free-radical polymerization: a "core-first"
 approach using resorcinarene-based
alkoxyamine initiators
 AUTHOR(S): Abraham, Sinoj; Choi, Jae Ho; Ha, Chang-Sik; Kim,
 Il
 CORPORATE SOURCE: Department of Polymer Science and Engineering,
 Pusan National University, Pusan, 609-735, S.
 Korea
 SOURCE: Journal of Polymer Science, Part A: Polymer
 Chemistry (2007), 45(23), 5559-5572
 CODEN: JPACEC; ISSN: 0887-624X
 PUBLISHER: John Wiley & Sons, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 19 Dec 2007
 AB The synthesis of new octa-functional **alkoxyamine initiators** for nitroxide-
 mediated radical polymerization (NMRP), by the derivatization of resorcinarene
 with nitroxide free radicals viz TEMPO and a freshly prepared phosphonylated
 nitroxide, is described. The efficiency of these **initiators** toward the
 controlled radical polymerization of styrene and tert-Bu acrylate is studied
 in detail. Linear analogs of these multifunctional **initiators** were also
 prepared to compare and evaluate their **initiation** efficiency. The favorable
 conditions for polymerization were optimized by varying the concentration of
initiators and free nitroxides, reaction conditions, etc., to obtain well-
 defined star polymers. Star polystyrene thus obtained were further used as
 macro-**initiator** for the block copolymn. with tert-Bu acrylate.
 IT 1004992-66-8P 1004992-67-9P 1004992-68-0P
 1004992-69-1P
 (synthesis of octa-functional **alkoxyamine**
initiators for nitroxide-mediated radical polymerization of star
 polymers)
 RN 1004992-66-8 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED

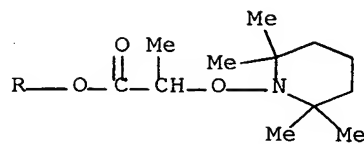
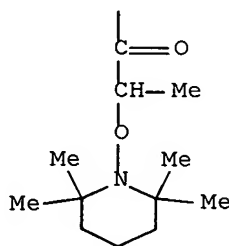
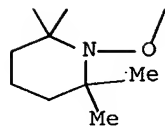


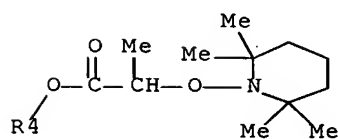
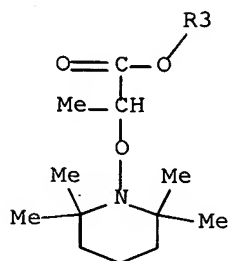
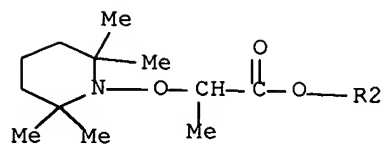
RN 1004992-67-9 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A

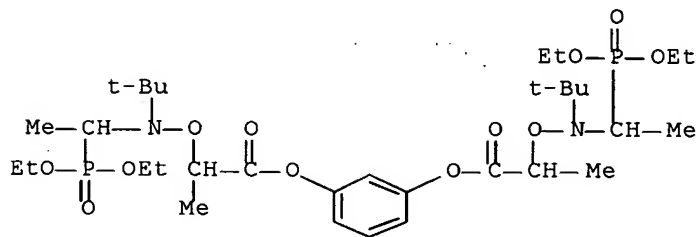


PAGE 2-A

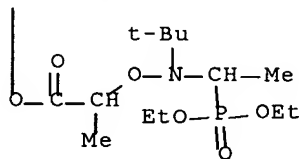
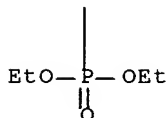
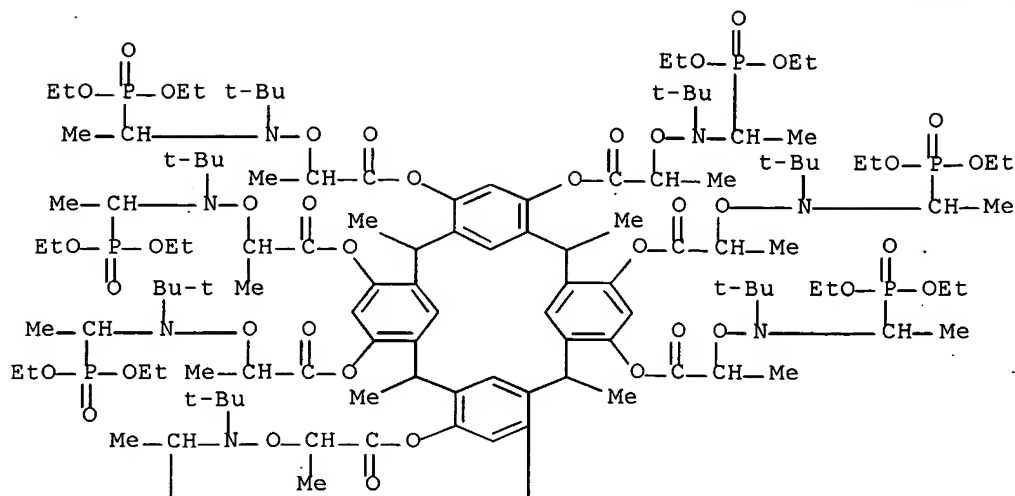




RN 1004992-68-0 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED



RN 1004992-69-1 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED



- CC 35-4 (Chemistry of Synthetic High **Polymers**)
- IT Amines, preparation
(alkoxylated, octa-; synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT Polymerization
(block, radical; synthesis of octa-armed star polymers using octa-functional **alkoxyamine initiators**)
- IT Nitroxides
(octa-; synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT Molecular weight
Polydispersity
(of star polymers prepared using octa-functional **alkoxyamine initiators** before and after hydrolysis)
- IT Polymerization
(radical; synthesis of octa-armed star polymers using octa-functional **alkoxyamine initiators**)
- IT Polymerization **catalysts**
(radical; synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT Polymers, preparation

- (star-branched, octa-armed; synthesis of octa-armed star polymers using octa-functional **alkoxyamine initiators**)
- IT 9003-53-6DP, Polystyrene, hydrolyzed 127972-36-5P, tert-Butyl acrylate-styrene block copolymer
(octa-armed star-shaped; synthesis of octa-armed star polymers using octa-functional **alkoxyamine initiators**)
- IT 366-18-7, 2,2'-Bipyridine 7787-70-4, Cuprous bromide
(synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT 1004992-66-8P 1004992-67-9P 1004992-68-0P 1004992-69-1P
(synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT 75-07-0, Acetaldehyde, reactions 75-64-9, tert-Butylamine, reactions 108-46-3, Resorcinol, reactions 563-76-8, 2-Bromopropionyl bromide 598-02-7, Diethyl phosphate 2564-83-2, TEMPO 65338-98-9
(synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT 96183-43-6P 122081-89-4P 1004992-64-6P 1004992-65-7P
(synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)
- IT 937-14-4, m-Chloroperbenzoic acid
(synthesis of octa-functional **alkoxyamine initiators** for nitroxide mediated radical polymerization of star polymers)

REFERENCE COUNT: 83 THERE ARE 83 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L67 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:1311691 HCAPLUS Full-text
 DOCUMENT NUMBER: 144:52058
 TITLE: Alkoxyamines containing a radically polymerizable group
 INVENTOR(S): Nesvadba, Peter; Kramer, Andreas; Bugnon, Lucienne
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
 SOURCE: PCT Int. Appl., 54 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005118651	A1	20051215	WO 2005-EP52260	20050517
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,			

10/519,030

NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1749032	A1	20070207	EP 2005-742775	20050517
EP 1749032	B1	20080227		

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR

CN 1957001	A	20070502	CN 2005-80016626	20050517
JP 2008500307	T	20080110	JP 2007-513909	20050517
US 2007232768	A1	20071004	US 2006-596436	20061114
KR 2007024655	A	20070302	KR 2006-727402	20061227

PRIORITY APPLN. INFO.: EP 2004-102337 A 20040527

WO 2005-EP52260 W 20050517

OTHER SOURCE(S): MARPAT 144:52058

ED Entered STN: 16 Dec 2005

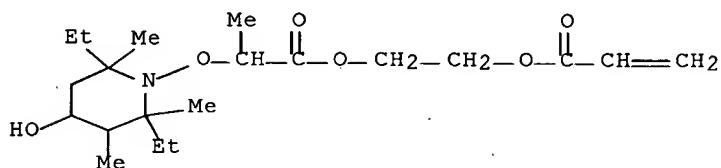
AB The instant invention relates to **alkoxyamine initiators**/regulators containing an ethylenically unsatd., radically polymerizable group. The compds. are useful for the preparation of complex polymeric architectures. Further aspects of the invention are a polymerizable composition and a polymerization process comprising the **alkoxyamine initiators**/regulators, a macroinitiator obtainable by the polymerization process and a process for polymerizing with the macroinitiator.

IT 871205-74-2P 871205-75-3P 871205-76-4P
871205-77-5P 871205-78-6P 871205-79-7P
871205-81-1P 871205-82-2P 871205-83-3P
871205-84-4P 871205-85-5P 871205-86-6P
871205-88-8P 871205-89-9P 871205-91-3P
871205-92-4P

(alkoxyamines containing a radically polymerizable group)

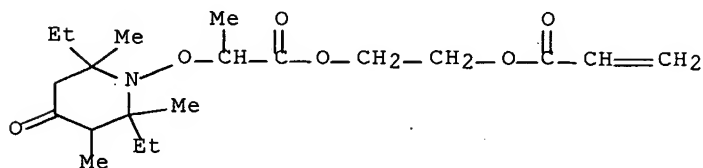
RN 871205-74-2 HCAPLUS

CN 2-Propenoic acid, 2-[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-1-oxopropoxy]ethyl ester (CA INDEX NAME)



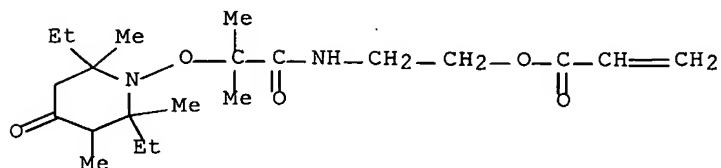
RN 871205-75-3 HCAPLUS

CN 2-Propenoic acid, 2-[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyloxy)-1-oxopropoxy]ethyl ester (CA INDEX NAME)



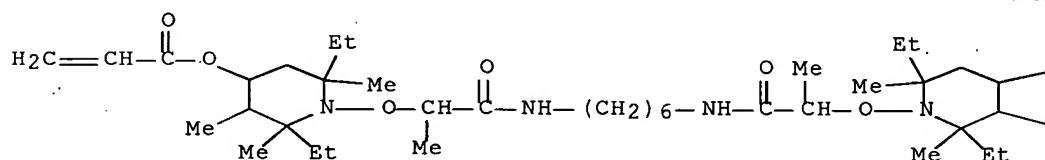
RN 871205-76-4 HCAPLUS

CN 2-Propenoic acid, 2-[[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]-2-methyl-1-oxopropyl]amino]ethyl ester (CA INDEX NAME).

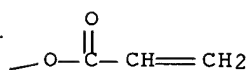


RN 871205-77-5 HCAPLUS

CN 2-Propenoic acid, 1,6-hexanediylbis[imino(1-methyl-2-oxo-2,1-ethanediyl)oxy(2,6-diethyl-2,3,6-trimethyl-1,4-piperidinediyl)] ester (9CI) (CA INDEX NAME)



PAGE 1-A

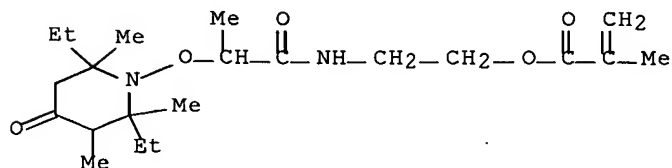


-Me

PAGE 1-B

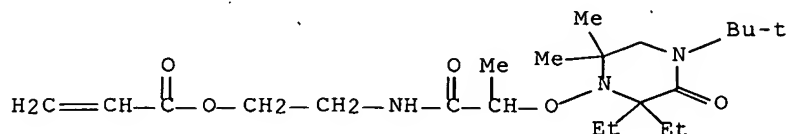
RN 871205-78-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-[[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]-1-oxopropyl]amino]ethyl ester (CA INDEX NAME)



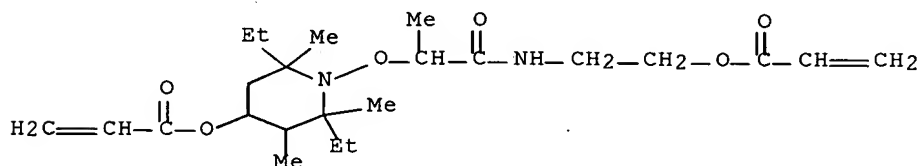
RN 871205-79-7 HCAPLUS

CN 2-Propenoic acid, 2-[[2-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]-1-oxopropyl]amino]ethyl ester (CA INDEX NAME)



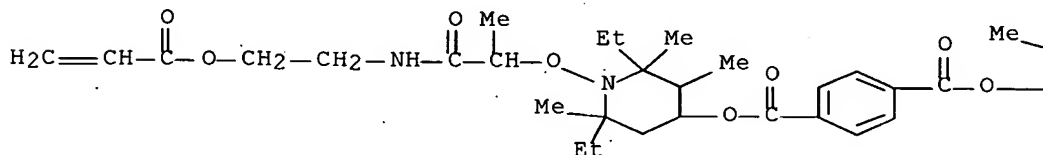
RN 871205-81-1 HCAPLUS

CN 2-Propenoic acid, 2,6-diethyl-2,3,6-trimethyl-1-[1-methyl-2-oxo-2-[[2-[(1-oxo-2-propenyl)oxy]ethyl]amino]ethoxy]-4-piperidinyl ester (9CI) (CA INDEX NAME)

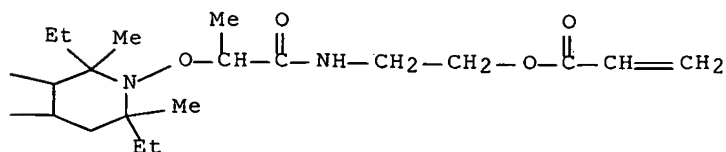


RN 871205-82-2 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[2,6-diethyl-2,3,6-trimethyl-1-[1-methyl-2-oxo-2-[[2-[(1-oxo-2-propenyl)oxy]ethyl]amino]ethoxy]-4-piperidinyl] ester (9CI) (CA INDEX NAME)



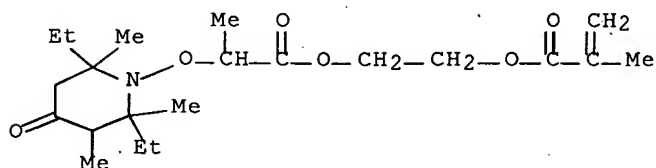
PAGE 1-A



PAGE 1-B

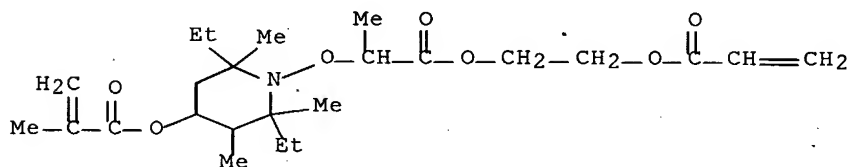
RN 871205-83-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]-1-oxopropoxy]ethyl ester (CA INDEX NAME)



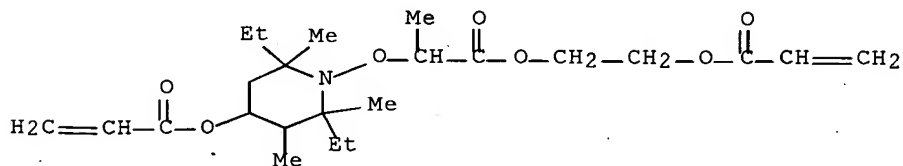
RN 871205-84-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2,6-diethyl-2,3,6-trimethyl-1-[1-methyl-2-oxo-2-[2-[(1-oxo-2-propenyl)oxy]ethoxy]ethoxy]-4-piperidinyl ester (9CI) (CA INDEX NAME)



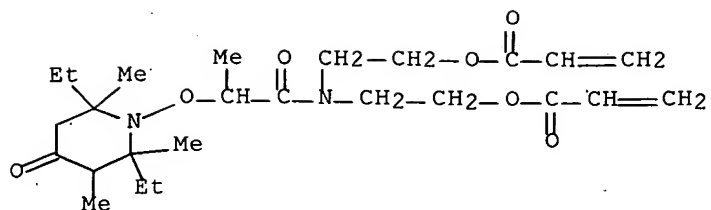
RN 871205-85-5 HCAPLUS

CN 2-Propenoic acid, 2,6-diethyl-2,3,6-trimethyl-1-[1-methyl-2-oxo-2-[2-[(1-oxo-2-propenyl)oxy]ethoxy]ethoxy]-4-piperidinyl ester (9CI) (CA INDEX NAME)



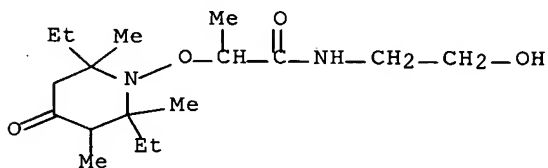
RN 871205-86-6 HCAPLUS

CN 2-Propenoic acid, [[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]-1-oxopropyl]imino]di-2,1-ethanediyl ester (9CI) (CA INDEX NAME)



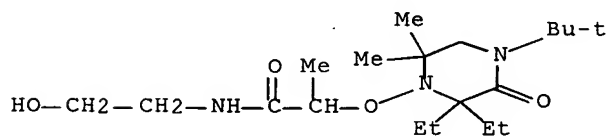
RN 871205-88-8 HCAPLUS

CN Propanamide, 2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]-N-(2-hydroxyethyl)- (CA INDEX NAME)



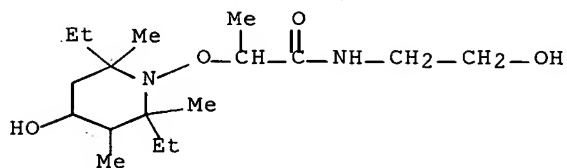
RN 871205-89-9 HCAPLUS

CN Propanamide, 2-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]-N-(2-hydroxyethyl)- (CA INDEX NAME)



RN 871205-91-3 HCAPLUS

CN Propanamide, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-N-(2-hydroxyethyl)- (CA INDEX NAME)

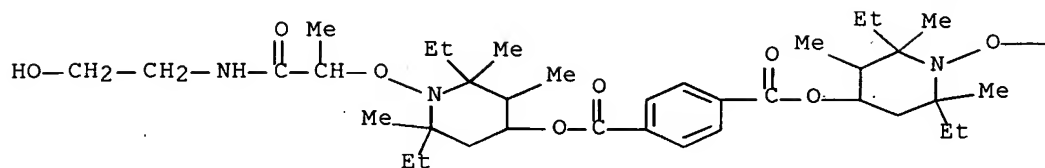


RN 871205-92-4 HCAPLUS

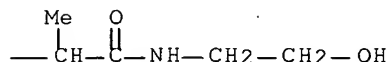
CN 1,4-Benzenedicarboxylic acid, bis[2,6-diethyl-1-[2-[(2-hydroxyethyl)amino]-1-methyl-2-oxoethoxy]-2,3,6-trimethyl-4-

piperidiny] ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

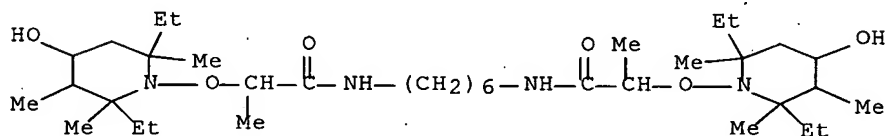


IT 485844-70-0

(alkoxyamines containing a radically polymerizable group)

RN 485844-70-0 HCAPLUS

CN Propanamide, N,N'-1,6-hexanediylbis[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy]- (CA INDEX NAME)



IC ICM C08F004-00

ICS C07D211-94; C07D241-08; C07F009-40

CC 35-2 (Chemistry of Synthetic High Polymers)

IT 42275-81-0P 639809-62-4P 756490-05-8P 871205-74-2P

871205-75-3P 871205-76-4P 871205-77-5P

871205-78-6P 871205-79-7P 871205-80-0P

871205-81-1P 871205-82-2P 871205-83-3P

871205-84-4P 871205-85-5P 871205-86-6P

871205-88-8P 871205-89-9P 871205-90-2P

871205-91-3P 871205-92-4P

(alkoxyamines containing a radically polymerizable group)

IT 100-20-9, Terephthaloylchloride 141-43-5, Ethanolamine, reactions

814-68-6, Acryloylchloride 2736-37-0, Isobutyrylbromide 3030-47-5

17639-93-9, 2-Chloropropionic acid methylester 51210-48-1

61746-17-6 188065-73-8 188526-94-5 264279-93-8

485844-70-0 871205-87-7

(alkoxyamines containing a radically polymerizable group)

REFERENCE COUNT:

4

THERE ARE 4 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L67 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:616482 HCAPLUS Full-text

DOCUMENT NUMBER: 144:254433

TITLE: Practical synthesis of **alkoxyamine initiators** for living radical polymerization

AUTHOR(S): Moon, Bongjin; Kang, Minhyuk

CORPORATE SOURCE: Department of Chemistry, Sogang University, Seoul, 121-742, S. Korea

SOURCE: Macromolecular Research (2005), 13(3), 229-235

CODEN: MRAECT; ISSN: 1598-5032

PUBLISHER: Polymer Society of Korea

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 18 Jul 2005

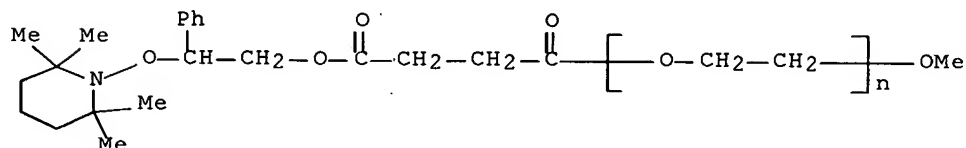
AB Various **alkoxyamine initiators** for nitroxide mediated radical polymerization (NMRP) were prepared in high yields by a simple substitution reaction of nitroxide anions with benzyl bromide. The required nitroxide anions were easily generated by treating either nitroxide free radicals or hydroxyamine with an alkali metal such as sodium or potassium in THF. This method is both practical and efficient, since the ionic conditions prevent other side reactions from occurring, such as the self-coupling or oligomerization reactions that are observed in the case of radical trapping conditions. To demonstrate the utility of the resulting **alkoxyamine initiators**, end- and telechelic-alkoxyamine PEG macroinitiators derived from the alkoxyamines were synthesized by a simple chemical modification, and used for the preparation of PEG-b-PS and PS-b-PEG-b-PS block copolymers by NMRP.

IT 877141-19-0P 877141-21-4P

(macroinitiator; synthesis of **alkoxyamine initiators** for living radical polymerization and block copolymer made by using them)

RN 877141-19-0 HCAPLUS

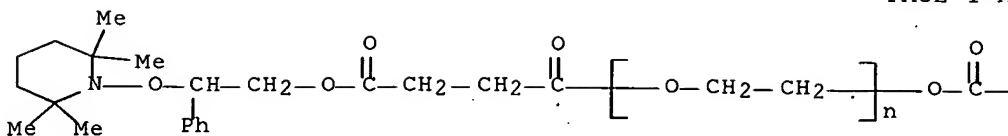
CN Poly(oxy-1,2-ethanediyl), α -[1,4-dioxo-4-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethoxy]butyl]- ω -methoxy- (9CI)
(CA INDEX NAME)



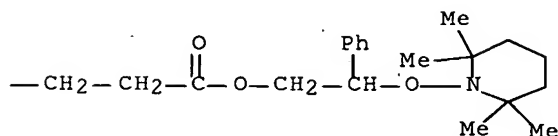
RN 877141-21-4 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -[1,4-dioxo-4-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethoxy]butyl]- ω -[1,4-dioxo-4-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethoxy]butoxy]- (9CI)
(CA INDEX NAME)

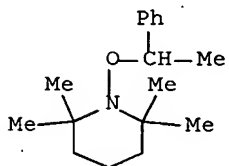
PAGE 1-A



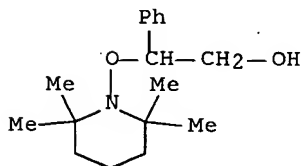
PAGE 1-B



IT 154554-67-3P, 2,2,6,6-Tetramethyl-1-(1-phenylethoxy)piperidine
 161776-41-6P
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 RN 154554-67-3 HCAPLUS
 CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)

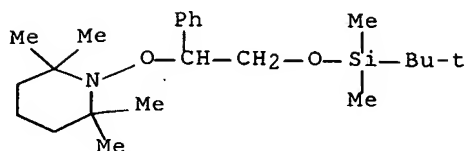


RN 161776-41-6 HCAPLUS
 CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]- (CA
 INDEX NAME)



IT 877141-11-2P
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 RN 877141-11-2 HCAPLUS

CN Piperidine, 1-[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]-1-phenylethoxy]-2,2,6,6-tetramethyl- (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST alkoxyamine living radical polymn **initiator** synthesis;
 substitution reaction living radical polymn **catalyst**
 synthesis; polyethylene glycol macroinitiator alkoxyamine block
 copolymer manuf; nitroxide mediated radical polymn **catalyst**
 synthesis
 IT Polyoxyalkylenes, reactions
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 IT **877141-19-0P 877141-21-4P**
 (macroinitiator; synthesis of **alkoxyamine**
initiators for living radical polymerization and block copolymer
 made by using them)
 IT **154554-67-3P**, 2,2,6,6-Tetramethyl-1-(1-phenylethoxy)piperidine
161776-41-6P 227000-59-1P 727989-07-3P
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 IT 108-30-5, Succinic anhydride, reactions 585-71-7,
 (1-Bromoethyl)benzene 2564-83-2, TEMPO 7440-09-7, Potassium,
 reactions 7440-23-5, Sodium, reactions 9004-74-4, Polyethylene
 glycol monomethyl ether 25322-68-3, Polyethylene glycol
 41252-83-9, 2-Bromo-2-phenylethanol 61015-94-9 98194-56-0,
 tert-Butylchlorosilane
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 IT 31961-02-1P 37684-51-8P 245759-95-9P **877141-11-2P**
877141-14-5P
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 IT 697291-44-4P, Ethylene oxide-styrene diblock copolymer 697303-36-9P,
 Ethylene oxide-styrene triblock copolymer
 (synthesis of **alkoxyamine initiators** for living
 radical polymerization and block copolymer made by using them)
 REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L67 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:157125 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:392795
 TITLE: Construction of a polymer skeleton that is cut in
 half by ionizing radiation
 AUTHOR(S): Shimizu, Takashi; Ichikawa, Tsuneki
 CORPORATE SOURCE: Division of Molecular Chemistry, Graduate School
 of Engineering, Hokkaido University, Sapporo,
 060-8628, Japan
 SOURCE: Journal of Polymer Science, Part A: Polymer

AB Polystyrene with a benzyl ester of carboxylic acid at the center of a polymer skeleton was synthesized by living radical polymerization. The **initiator** used had two functional groups for 2,2,6,6-tetramethylpiperidinoxyl (TEMPO)-mediated living radical polymerization on the benzyl and the carboxylic sides of the benzyl ester. Introduction of the benzyl ester changed the polystyrene from a crosslink type to a scission type polymer on γ -irradiation. Irradiation of the polymer resulted in a binary change of the mol. weight because of the dissociative capture of secondary electrons by the benzyl ester, as:

$$\text{MnR1COOCH(C6H5)R2Mn} + e^- \rightarrow \text{MnR1COO}^- + \cdot \text{CH(C6H5)R2Mn}.$$

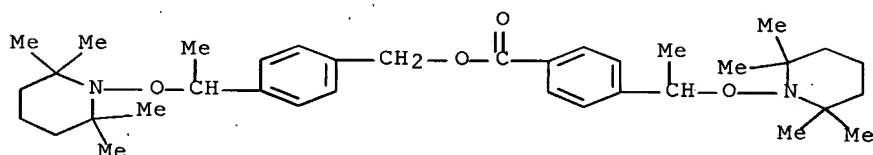
The binary change of the mol. weight suggests that the polymer can be used as a new type of radiation resist with high sensitivity and spatial resolution to ionizing and high resistivity to plasma etching. The number of scissions per 100 eV radiation energy absorbed was 0.29, which was about one fourth of the yield of secondary electrons. The low efficiency was because of the recombination of polymer radicals generated by the dissociative electron attachment.

IT 647849-32-9P

(construction of a benzyl ester central functionalized polystyrene skeleton that is cut in half by ionizing radiation)

RN 647849-32-9 HCAPLUS

CN Benzoic acid, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]-, [4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl]methyl ester (CA INDEX NAME)

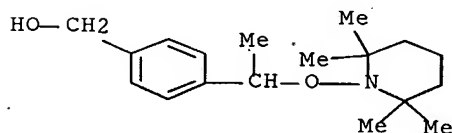


IT 209550-24-3P

(construction of a benzyl ester central functionalized polystyrene skeleton that is cut in half by ionizing radiation)

RN 209550-24-3 HCAPLUS

CN Benzenemethanol, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]- (CA INDEX NAME)



CC 35-8 (Chemistry of Synthetic High Polymers)

IT Polymerization

Polymerization catalysts

(living, radical; construction of a benzyl ester central functionalized polystyrene skeleton that is cut in half by ionizing radiation)

IT 647849-32-9P

(construction of a benzyl ester central functionalized polystyrene skeleton that is cut in half by ionizing radiation)

IT 209550-24-3P

(construction of a benzyl ester central functionalized polystyrene skeleton that is cut in half by ionizing radiation)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L67 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:2855 HCAPLUS Full-text

DOCUMENT NUMBER: 140:77932

TITLE: Cationic alkoxyamines and their use in producing nanoparticles from natural or synthetic **clays**

INVENTOR(S): Muehlebach, Andreas; Nesvadba, Peter; Kramer, Andreas

PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.

SOURCE: PCT Int. Appl., 62 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004000809	A1	20031231	WO 2003-EP6370	20030617
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2486958	A1	20031231	CA 2003-2486958	20030617
AU 2003279373	A1	20040106	AU 2003-279373	20030617
EP 1515950	A1	20050323	EP 2003-740262	20030617
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1662499	A	20050831	CN 2003-814665	20030617
JP 2005538964	T	20051222	JP 2004-514745	20030617
MX 2004PA12885	A	20050331	MX 2004-PA12885	20041217
US 2005215691	A1	20050929	US 2004-519030	20041222

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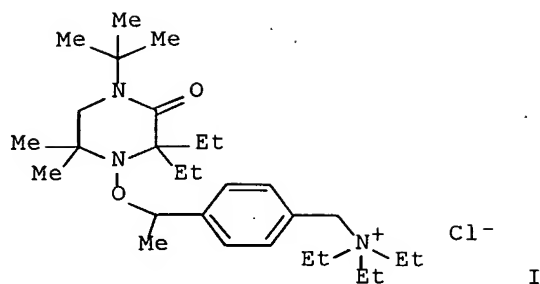
PRIORITY APPLN. INFO.: EP 2002-405520 A 20020624

WO 2003-EP6370 W 20030617

OTHER SOURCE(S): MARPAT 140:77932

ED Entered STN: 02 Jan 2004

GI



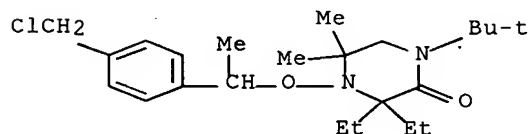
AB The instant invention relates to cationic alkoxyamines such as I, which are useful as polymerization **initiators**/regulators in a controlled stable free radical polymerization of unsatd. compds. in the presence of nanoparticles of natural or synthetic **clays** to produce intercalated and/or exfoliated nanoparticles. The invention also relates to improved nanocomposites produced by this process and to the use of these nanocomposite compns. as, for example, coatings, sealants, caulks, adhesives and as plastic additives.

IT **639809-49-7P**, 1-tert-Butyl-4-[1-[4-(chloromethyl)phenyl]ethoxy]-3,3-diethyl-5,5-dimethylpiperazin-2-one
639809-51-1P, 1-tert-Butyl-3,3-diethyl-5,5-dimethyl-4-[1-[4-(4-methylpiperazin-1-ylcarbonyl)phenyl]ethoxy]piperazin-2-one
639809-54-4P, 2-(2,6-Diethyl-2,3,6-trimethylpiperidin-1-yloxy)-N-(3-dimethylaminopropyl)propionamide **639809-56-6P**,
 2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-N-(3-dimethylaminopropyl)propionamide **639809-60-2P**,
 2,6-Diethyl-1-(1-phenylethoxy)-2,3,6-trimethylpiperidin-4-one
 O-(3-dimethylaminopropyl) oxime **639809-63-5P**,
 Bis[2,6-diethyl-1-[1-(3-dimethylaminopropylcarbonyl)ethoxy]-2,3,6-trimethylpiperidin-4-yl] terephthalate **639809-65-7P**,
 N-(3-Dimethylaminopropyl)-2-(4-hydroxy-2,2,6,6-tetramethylpiperidin-1-yloxy)propionamide **639809-67-9P**, 2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-N-(3-dimethylaminopropyl)-2-methylpropionamide **639809-73-7P**

(**catalyst** precursor; cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

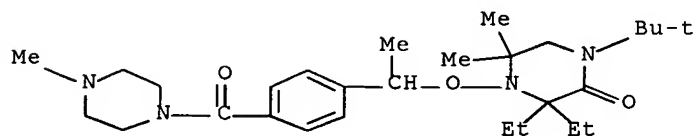
RN 639809-49-7 HCAPLUS

CN Piperazinone, 4-[1-[4-(chloromethyl)phenyl]ethoxy]-1-(1,1-dimethylethyl)-3,3-diethyl-5,5-dimethyl- (9CI) (CA INDEX NAME)



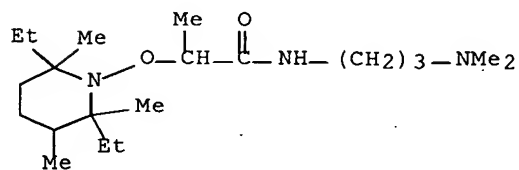
RN 639809-51-1 HCAPLUS

CN Piperazine, 1-[4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]benzoyl]-4-methyl- (9CI) (CA INDEX NAME)



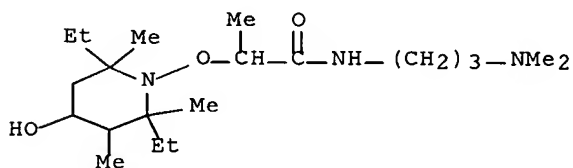
RN 639809-54-4 HCAPLUS

CN Propanamide, 2-[(2,6-diethyl-2,3,6-trimethyl-1-piperidinyloxy)-N-[3-(dimethylamino)propyl]- (CA INDEX NAME)



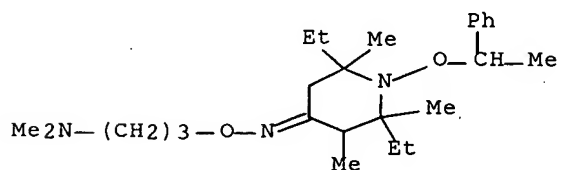
RN 639809-56-6 HCAPLUS

CN Propanamide, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-N-[3-(dimethylamino)propyl]- (CA INDEX NAME)



RN 639809-60-2 HCAPLUS

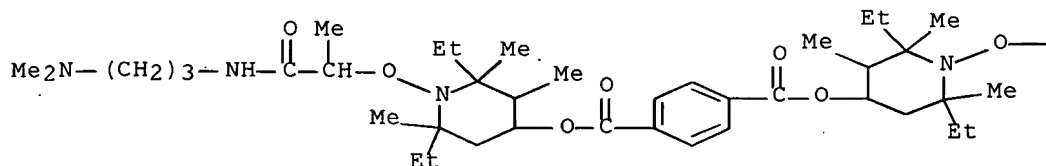
CN 4-Piperidinone, 2,6-diethyl-2,3,6-trimethyl-1-(1-phenylethoxy)-, O-[3-(dimethylamino)propyl]oxime (CA INDEX NAME)



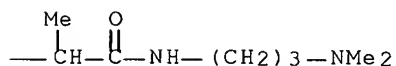
RN 639809-63-5 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[1-[2-[[3-(dimethylamino)propyl]amino]-1-methyl-2-oxoethoxy]-2,6-diethyl-2,3,6-trimethyl-4-piperidiny] ester (9CI) (CA INDEX NAME)

PAGE 1-A

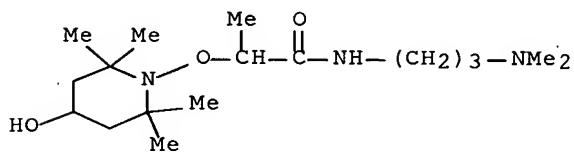


PAGE 1-B



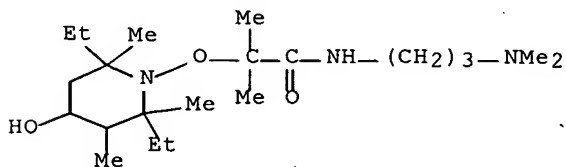
RN 639809-65-7 HCAPLUS

CN Propanamide, N-[3-(dimethylamino)propyl]-2-[(4-hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy)]- (CA INDEX NAME)



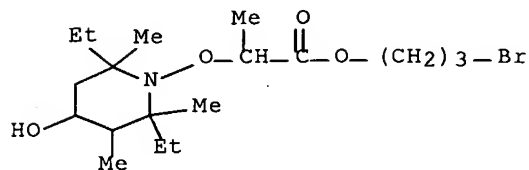
RN 639809-67-9 HCAPLUS

CN Propanamide, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)]-N-[3-(dimethylamino)propyl]-2-methyl- (CA INDEX NAME)



RN 639809-73-7 HCAPLUS

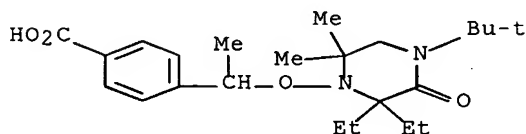
CN Propanoic acid, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-, 3-bromopropyl ester (CA INDEX NAME)



IT **319458-08-7**, 4-[1-(4-tert-Butyl-2,2-diethyl-6,6-dimethyl-3-oxopiperazin-1-yloxy)ethyl]benzoic acid **478697-26-6**
(**catalyst** precursor; cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

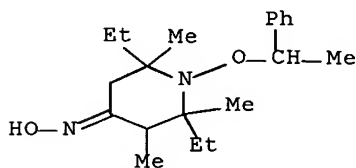
RN 319458-08-7 HCAPLUS

CN Benzoic acid, 4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]- (CA INDEX NAME)



RN 478697-26-6 HCAPLUS

CN 4-Piperidinone, 2,6-diethyl-2,3,6-trimethyl-1-(1-phenylethoxy)-, oxime (CA INDEX NAME)



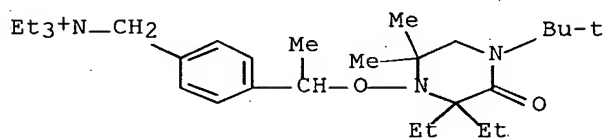
IT **639809-48-6P**, [4-[1-(4-tert-Butyl-2,2-diethyl-6,6-dimethyl-3-oxopiperazin-1-yloxy)ethyl]benzyl]triethylammonium chloride
639809-50-0P, 4-[4-[1-(4-tert-Butyl-2,2-diethyl-6,6-dimethyl-3-oxopiperazin-1-yloxy)ethyl]benzoyl]-1,1-dimethylpiperazin-1-ium iodide
639809-52-2P, [3-[2-(2,6-Diethyl-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylethylammonium bromide
639809-55-5P, [3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylethylammonium bromide
639809-59-9P, [3-[2,6-Diethyl-1-(1-phenylethoxy)-2,3,6-trimethylpiperidin-4-ylideneaminoxy]propyl]dimethylethylammoniu

m bromide **639809-61-3P**, Bis[[3-[2-(2,6-diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylethylammonium bromide] terephthalate **639809-64-6P**, Ethyl[3-[2-(4-hydroxy-2,2,6,6-tetramethylpiperidin-1-yloxy)propionylamino]propyl]dimethylammonium bromide **639809-66-8P**, [3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-2-methylpropionylamino]propyl]dimethylethylammonium bromide **639809-69-1P**, Benzyl[3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-2-methylpropionylamino]propyl]dimethylammonium chloride **639809-70-4P**, Benzyl[3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylammonium chloride **639809-71-5P**, [3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionyl]propyl]tributylphosphonium bromide

(cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

RN 639809-48-6 HCAPLUS

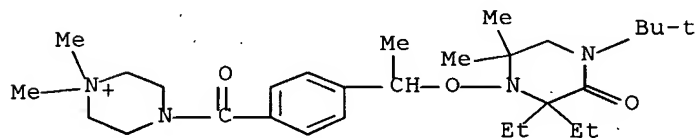
CN Benzenemethanaminium, 4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]-N,N,N-triethyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

RN 639809-50-0 HCAPLUS

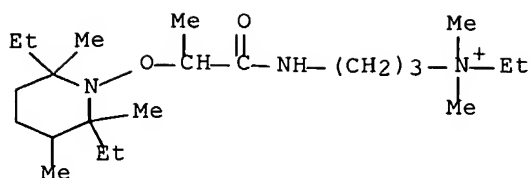
CN Piperazinium, 4-[4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]benzoyl]-1,1-dimethyl-, iodide (9CI) (CA INDEX NAME)



● I⁻

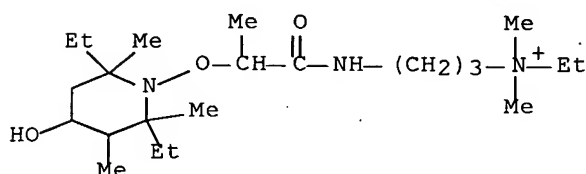
RN 639809-52-2 HCAPLUS

CN 1-Propanaminium, 3-[[2-[(2,6-diethyl-2,3,6-trimethyl-1-piperidinyl)oxy]-1-oxopropyl]amino]-N-ethyl-N,N-dimethyl-, bromide (9CI) (CA INDEX NAME)

● Br⁻

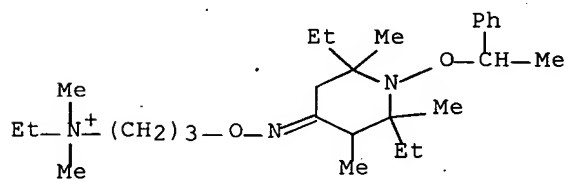
RN 639809-55-5 HCAPLUS

CN 1-Propanaminium, 3-[[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-1-oxopropyl]amino]-N-ethyl-N,N-dimethyl-, bromide (9CI) (CA INDEX NAME)

● Br⁻

RN 639809-59-9 HCAPLUS

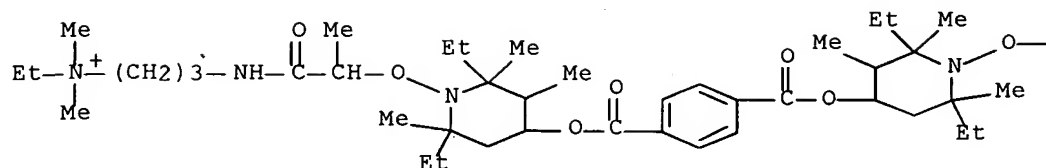
CN 1-Propanaminium, 3-[[[2,6-diethyl-2,3,6-trimethyl-1-(1-phenylethoxy)-4-piperidinylidene]amino]oxy]-N-ethyl-N,N-dimethyl-, bromide (9CI) (CA INDEX NAME)

● Br⁻

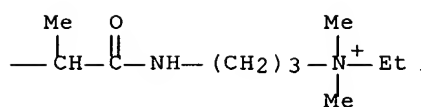
RN 639809-61-3 HCAPLUS

CN 1-Propanaminium, 3,3'-[[1,4-phenylenebis[carbonyloxy(2,6-diethyl-2,3,6-trimethyl-4,1-piperidinediyl)oxy(2-methyl-1-oxo-2,1-ethanediyl)imino]]bis[N-ethyl-N,N-dimethyl-, dibromide (9CI) (CA INDEX NAME)

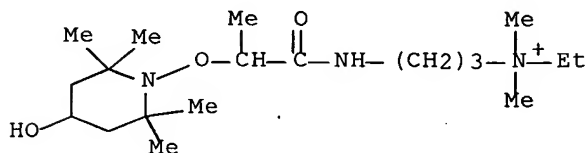
PAGE 1-A

● 2 Br⁻

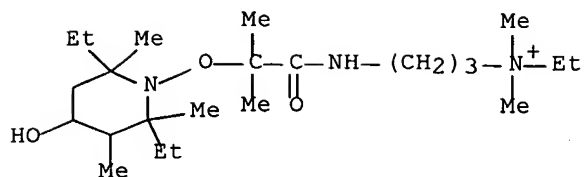
PAGE 1-B



RN 639809-64-6 HCAPLUS
 CN 1-Propanaminium, N-ethyl-3-[[2-[(4-hydroxy-2,2,6,6-tetramethyl-1-piperidinyl)oxy]-1-oxopropyl]amino]-N,N-dimethyl-, bromide (9CI) (CA INDEX NAME)

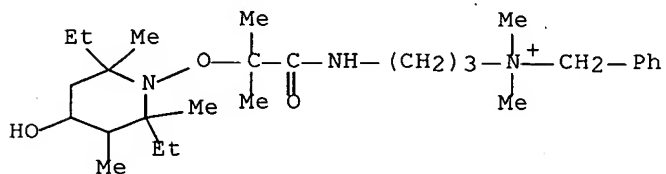
● Br⁻

RN 639809-66-8 HCAPLUS
 CN 1-Propanaminium, 3-[[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-2-methyl-1-oxopropyl]amino]-N-ethyl-N,N-dimethyl-, bromide (9CI) (CA INDEX NAME)

● Br⁻

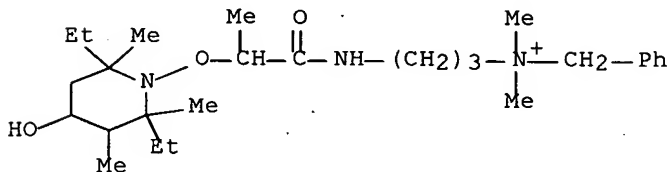
RN 639809-69-1 HCAPLUS

CN Benzenemethanaminium, N-[3-[[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-2-methyl-1-oxopropyl]amino]propyl]-N,N-dimethyl-, chloride (9CI) (CA INDEX NAME)

● Cl⁻

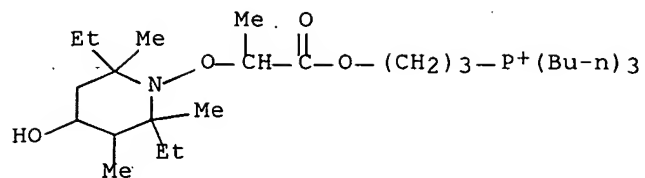
RN 639809-70-4 HCAPLUS

CN Benzenemethanaminium, N-[3-[[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-1-oxopropyl]amino]propyl]-N,N-dimethyl-, chloride (9CI) (CA INDEX NAME)

● Cl⁻

RN 639809-71-5 HCAPLUS

CN Phosphonium, tributyl[3-[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-1-oxopropoxy]propyl]-, bromide (9CI) (CA INDEX NAME)



● Br⁻

- IC ICM C07D211-94
ICS C07D241-08; C07F009-38; C08F002-00
- CC 37-3 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 23, 27, 28, **38**, 42
- ST cationic **alkoxyamine initiator** unsatd compd polymn
nanocomposite manuf; plastic additive nanocomposite cationic
alkoxyamine polymn **initiator**; caulking nanocomposite
cationic alkoxyamine polymn **initiator**; adhesive
nanocomposite cationic alkoxyamine polymn **initiator**;
tertiary butyldiethyloxopiperazinyl oxyethyl benzyltriethylammonium
chloride **initiator** polymn nanocomposite manuf; sealant
nanocomposite cationic alkoxyamine polymn **initiator**; coating
nanocomposite cationic alkoxyamine polymn **initiator**
- IT Phosphonium compounds
Quaternary ammonium compounds, preparation
(alkoxyamino; cationic alkoxyamines for **catalysts** /
regulators for polymerization of unsatd. compds. in presence of
nanoparticles from natural or synthetic **clays** for manufacture
of nanocomposites)
- IT Disperse systems
(cationic alkoxyamines for **catalysts**/regulators for
polymerization of unsatd. compds. in presence of nanoparticles from
natural or synthetic **clays** for manufacture of nanocomposite
dispersions)
- IT Nanocomposites
Polymerization **catalysts**
(cationic alkoxyamines for **catalysts**/regulators for
polymerization of unsatd. compds. in presence of nanoparticles from
natural or synthetic **clays** for manufacture of nanocomposites)
- IT Phyllosilicate minerals
Smectite-group minerals
(cationic alkoxyamines for **catalysts**/regulators for
polymerization of unsatd. compds. in presence of nanoparticles from
natural or synthetic **clays** for manufacture of nanocomposites)
- IT Adhesives
(cationic alkoxyamines for **catalysts**/regulators for
polymerization of unsatd. compds. in presence of nanoparticles from
natural or synthetic **clays** for manufacture of nanocomposites
for adhesive additives)
- IT Coating materials
(cationic alkoxyamines for **catalysts**/regulators for
polymerization of unsatd. compds. in presence of nanoparticles from
natural or synthetic **clays** for manufacture of nanocomposites
for coating additives)
- IT Inks
(cationic alkoxyamines for **catalysts**/regulators for

polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites for ink additives)

IT Paints

(cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites for paint additives)

IT Clay minerals

(intercalated, cationic alkoxyamine-; cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

IT Plastics, miscellaneous

(thermoplastics; cationic alkoxyamines for **catalysts** /regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites for thermoplastics)

IT 188526-94-5P **639809-49-7P**, 1-tert-Butyl-4-[1-[4-(chloromethyl)phenyl]ethoxy]-3,3-diethyl-5,5-dimethylpiperazin-2-one **639809-51-1P**, 1-tert-Butyl-3,3-diethyl-5,5-dimethyl-4-[1-[4-(4-methylpiperazin-1-ylcarbonyl)phenyl]ethoxy]piperazin-2-one 639809-53-3P, 2-Chloro-N-(3-dimethylaminopropyl)propionamide **639809-54-4P**, 2-(2,6-Diethyl-2,3,6-trimethylpiperidin-1-yloxy)-N-(3-dimethylaminopropyl)propionamide **639809-56-6P**, 2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-N-(3-dimethylaminopropyl)propionamide 639809-58-8P, Diethyl [1-[tert-butyl-[1-(3-dimethylaminopropylcarbonyl)ethoxy]amino]-2,2-dimethylpropyl]phosphonate **639809-60-2P**, 2,6-Diethyl-1-(1-phenylethoxy)-2,3,6-trimethylpiperidin-4-one O-(3-dimethylaminopropyl) oxime **639809-63-5P**, Bis[2,6-diethyl-1-[1-(3-dimethylaminopropylcarbonyl)ethoxy]-2,3,6-trimethylpiperidin-4-yl] terephthalate **639809-65-7P**, N-(3-Dimethylaminopropyl)-2-(4-hydroxy-2,2,6,6-tetramethylpiperidin-1-yloxy)propionamide **639809-67-9P**, 2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-N-(3-dimethylaminopropyl)-2-methylpropionamide 639809-68-0P, 2-Bromo-N-(3-dimethylaminopropyl)-2-methylpropionamide 639809-72-6P, 3-Bromopropyl 2-bromopropionate **639809-73-7P**

(**catalyst** precursor; cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

IT 74-88-4, Methyl iodide, reactions 74-96-4, Ethyl bromide 100-44-7, Benzyl chloride, reactions 109-01-3, N-Methylpiperazine 109-54-6, 3-Dimethylaminopropyl chloride 109-55-7, 3-Dimethylamino-1-propylamine 121-44-8, Triethylamine, reactions 627-18-9 998-40-3, Tributylphosphine 1592-20-7, 4-Chloromethylstyrene 2226-96-2, 4-Hydroxy-TEMPO 17639-93-9, Methyl 2-chloropropionate 20769-85-1, 2-Bromo-2-methylpropionyl bromide 61745-37-7, 2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidine 1-N-oxyl 61746-17-6, 2,6-Diethyl-2,3,6-trimethylpiperidine 1-N-oxyl 264279-93-8, 1-tert-Butyl-3,3-diethyl-5,5-dimethylpiperazin-2-one 4-N-oxyl **319458-08-7**, 4-[1-(4-tert-Butyl-2,2-diethyl-6,6-dimethyl-3-oxopiperazin-1-yloxy)ethyl]benzoic acid **478697-26-6** 639809-62-4

(**catalyst** precursor; cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

IT 639809-48-6P, [4-[1-(4-tert-Butyl-2,2-diethyl-6,6-dimethyl-3-oxopiperazin-1-yloxy)ethyl]benzyl]triethylammonium chloride
 639809-50-0P, 4-[4-[1-(4-tert-Butyl-2,2-diethyl-6,6-dimethyl-3-oxopiperazin-1-yloxy)ethyl]benzoyl]-1,1-dimethylpiperazin-1-ium iodide
 639809-52-2P, [3-[2-(2,6-Diethyl-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylethylammonium bromide
 639809-55-5P, [3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylethylammonium bromide 639809-57-7P 639809-59-9P, [3-[2,6-Diethyl-1-(1-phenylethoxy)-2,3,6-trimethylpiperidin-4-ylideneaminoxy]propyl]dimethylethylammonium bromide 639809-61-3P, Bis[[3-[2-(2,6-diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylethylammonium bromide] terephthalate 639809-64-6P, Ethyl[3-[2-(4-hydroxy-2,2,6,6-tetramethylpiperidin-1-yloxy)propionylamino]propyl]dimethylammonium bromide
 639809-66-8P, [3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-2-methylpropionylamino]propyl]dimethylethylammonium bromide 639809-69-1P, Benzyl[3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)-2-methylpropionylamino]propyl]dimethylammonium chloride
 639809-70-4P, Benzyl[3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionylamino]propyl]dimethylammonium chloride 639809-71-5P, [3-[2-(2,6-Diethyl-4-hydroxy-2,3,6-trimethylpiperidin-1-yloxy)propionyloxy]propyl]tributylphosphonium bromide

(cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

IT 9003-49-0P, Poly(butyl acrylate) 9003-53-6P, Polystyrene
 (cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

IT 1318-00-9, Vermiculite 1318-74-7, Kaolinite, uses 1318-93-0D, Montmorillonite, derivs. 1319-41-1, Saponite 12172-85-9, Beidellite 12173-47-6, Optigel SH 12174-06-0, Nontronite (Fe₂(Si_{3.67}Al_{0.33})Na_{0.33}(OH)2010.xH₂O) 12244-16-5, Endellite 12417-86-6, Stevensite 565450-32-0, Nanofil EXM588

(cationic alkoxyamines for **catalysts**/regulators for polymerization of unsatd. compds. in presence of nanoparticles from natural or synthetic **clays** for manufacture of nanocomposites)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L67 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:583946 HCAPLUS Full-text

DOCUMENT NUMBER: 139:246241

TITLE: An improved catalytic method for alkoxyamine synthesis - functionalized and biradical **initiators** for nitroxide-mediated radical polymerization

AUTHOR(S): Bothe, Marc; Schmidt-Naake, Gudrun

CORPORATE SOURCE: Institut fuer Technische Chemie, Technische Universitaet Clausthal, Clausthal-Zellerfeld, 38678, Germany

SOURCE: Macromolecular Rapid Communications (2003), 24(10), 609-613

CODEN: MRCOE3; ISSN: 1022-1336

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 30 Jul 2003

AB Mn(salen)Cl [(N,N'-disalicylidene-1,2-ethanediamino)manganese chloride] was applied as a low-cost **catalyst** for the formation of alkoxyamines from nitroxides and substituted styrenes. These "unimol. **initiators**" for nitroxide-mediated radical polymerization (NMRP) were synthesized using 2,2,6,6-tetramethyl-1-piperidine-1-oxyl and 2,2,5-trimethyl-4-phenyl-3-azahexane-3-oxyl. Functionalized alkoxyamines were obtained from 4-vinylbenzyl chloride and 4-vinylbenzyl alc. The divinyl compound 1,2-bis(4-vinylphenyl)ethane was converted to an alkoxyamine monomer and to bisaminoxy compds., which can be used as "biradical **initiators**" for NMRP.

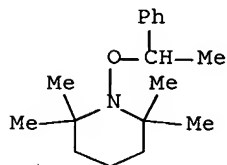
IT 154554-67-3P 212132-38-2P 596135-22-7P

596135-24-9P

(improved catalytic method for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

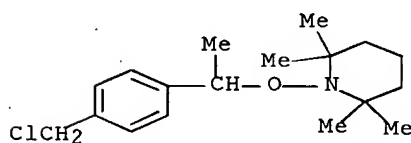
RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



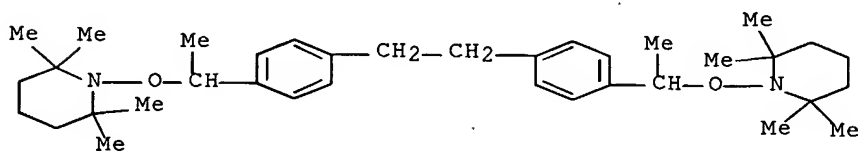
RN 212132-38-2 HCAPLUS

CN Piperidine, 1-[1-[4-(chloromethyl)phenyl]ethoxy]-2,2,6,6-tetramethyl- (CA INDEX NAME)



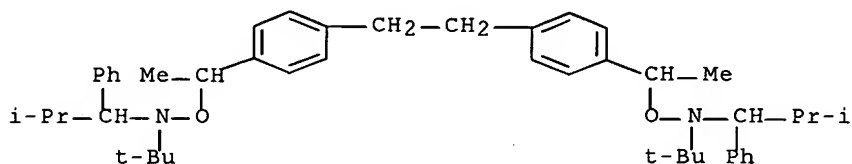
RN 596135-22-7 HCAPLUS

CN Piperidine, 1,1'-[1,2-ethanediylbis(4,1-phenyleneethylenedioxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 596135-24-9 HCAPLUS

CN Benzenemethanamine, N,N'-[1,2-ethanediylbis(4,1-phenyleneethylideneoxy)]bis[N-(1,1-dimethylethyl)- α -(1-methylethyl)- (9CI) (CA INDEX NAME)

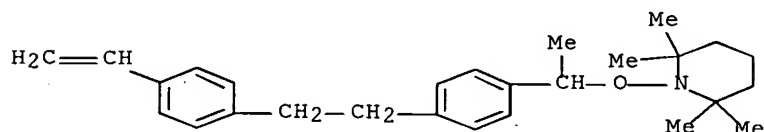


IT 596135-23-8P

(monomer; improved catalytic method for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

RN 596135-23-8 HCAPLUS

CN Piperidine, 1-[1-[4-[2-(4-ethenylphenyl)ethyl]phenyl]ethoxy]-2,2,6,6-tetramethyl- (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

ST **alkoxyamine initiator** nitroxide radical polymn

IT **Catalysts**

(for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

IT Polymerization **catalysts**

(radical; improved catalytic method for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

IT 53177-12-1P

(**catalyst**; improved catalytic method for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

IT 154554-67-3P 212132-38-2P 227000-59-1P

227000-85-3P 433266-98-9P 596135-22-7P

596135-24-9P

(improved catalytic method for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

IT 1074-61-9P, 4-Vinylbenzyl alcohol 2628-16-2P, 4-Vinylphenyl acetate. 48174-52-3P, 1,2-Bis(4-vinylphenyl)ethane

(intermediate; improved catalytic method for synthesis of alkoxyamine functionalized and biradical **initiators** for nitroxide-mediated radical polymerization)

IT 596135-23-8P

(monomer; improved catalytic method for synthesis of alkoxyamine

functionalized and biradical **initiators** for
nitroxide-mediated radical polymerization)
IT 94-93-9, N,N'-Disalicylidene-1,2-ethanediamine 1592-20-7,
4-Vinylbenzyl chloride 2564-83-2, TEMPO 6156-78-1, Manganese
acetate tetrahydrate 61015-94-9
(starting material; improved catalytic method for synthesis of
alkoxyamine functionalized and biradical **initiators** for
nitroxide-mediated radical polymerization)
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L67 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:383971 HCAPLUS Full-text

DOCUMENT NUMBER: 139:117728

TITLE: Synthesis and reactivity of functionalized
alkoxyamine initiators for
nitroxide-mediated radical polymerization of
styrene

AUTHOR(S): Li, Irene Q.; Knauss, Daniel M.; Priddy, Duane B.;
Howell, Bob A.

CORPORATE SOURCE: Department of Chemistry and Geochemistry, Colorado
School of Mines, Golden, CO, 80401, USA

SOURCE: Polymer International (2003), 52(5), 805-812
CODEN: PLYIEI; ISSN: 0959-8103

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 20 May 2003

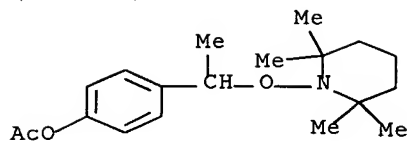
AB The synthesis and examination of different functionalized (2,2,6,6-tetramethyl-1-piperidinyloxy free radical) TEMPO-containing **alkoxyamine initiators** for nitroxide-mediated radical polymerization of styrene are reported. **Initiators** with ester and carbonate functional groups were synthesized by a low-temperature radical-abstraction reaction of the functionalized ethylbenzene in the presence of TEMPO to introduce the functional groups onto the **initiating** chain-end of polystyrene. An **initiator** with two alkoxyamine groups sym. located at each end of a carbonate bond was also synthesized and used for nitroxide-mediated styrene polymerization. Styrene polymerization using these **initiators** followed first-order kinetics up to approx. 60 min at 140° or 30% monomer conversion. Alkoxyamines bearing an acetoxy or tert-butylcarbonate group at the p-position of 1-(2,2,6,6-tetramethyl-1-piperidinyloxy)ethylbenzene behave in a similar way to the unfunctionalized **initiator**. With an **initiator** containing two alkoxyamine groups, the resulting polymer mol. weight was twice that of the polymer obtained from **initiators** with only one alkoxyamine group, as expected from propagation from both chain-ends. Upon hydrolysis of the carbonate bond, equivalent polymer chain growth occurred from each alkoxyamine site in the difunctional **initiator**.

IT 213699-59-3P 224824-56-0P 562102-19-6P
562102-23-2P

(synthesis of TEMPO-containing **alkoxyamine initiators**
for radical polymerization of styrene)

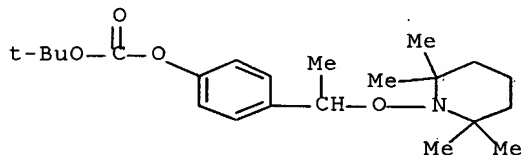
RN 213699-59-3 HCAPLUS

CN Phenol, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]-, acetate
(ester) (9CI) (CA INDEX NAME)



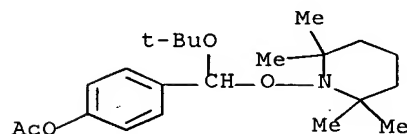
RN 224824-56-0 HCAPLUS

CN Carbonic acid, 1,1-dimethylethyl 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl ester (9CI) (CA INDEX NAME)



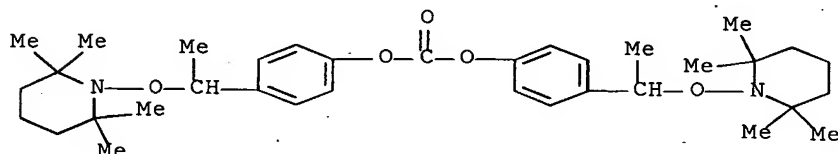
RN 562102-19-6 HCAPLUS

CN Phenol, 4-[(1,1-dimethylethoxy)[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]methyl]-, acetate (ester) (9CI) (CA INDEX NAME)



RN 562102-23-2 HCAPLUS

CN Phenol, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]-, carbonate (2:1) (ester) (9CI) (CA INDEX NAME)

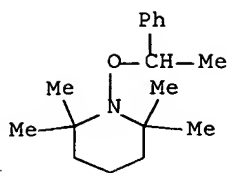


IT 154554-67-3P 562102-22-1P

(synthesis of TEMPO-containing alkoxyamine initiators
for radical polymerization of styrene)

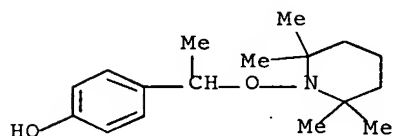
RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



RN 562102-22-1 HCAPLUS

CN Phenol, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]- (CA
INDEX NAME)



- CC 35-4 (Chemistry of Synthetic High **Polymers**)
- ST TEMPO contg **alkoxyamine initiator** synthesis
styrene radical polymn
- IT Amines, preparation
(alkoxylated; synthesis of TEMPO-containing **alkoxyamine
initiators** for radical polymerization of styrene)
- IT Polydispersity
(of polystyrene prepared using TEMPO-containing **alkoxyamine
initiators**)
- IT Polymerization
(radical, solution; of styrene using TEMPO-containing **alkoxyamine
initiators** and synthesis of the **initiators**)
- IT Polymerization kinetics
(radical; of styrene using TEMPO-containing **alkoxyamine
initiators** and synthesis of the **initiators**)
- IT Polymerization **catalysts**
(radical; synthesis of TEMPO-containing **alkoxyamine
initiators** for radical polymerization of styrene)
- IT Nitroxides
(synthesis of TEMPO-containing **alkoxyamine initiators**
for radical polymerization of styrene)
- IT 9003-53-6P, Polystyrene
(radical polymerization of styrene using TEMPO-containing **alkoxyamine
initiators** and synthesis of the **initiators**)
- IT 213699-59-3P 224824-56-0P 562102-19-6P
562102-23-2P
(synthesis of TEMPO-containing **alkoxyamine initiators**
for radical polymerization of styrene)
- IT 75-44-5, Phosgene 123-07-9, 4-Ethylphenol 1876-22-8,
Di-tert-butylperoxyoxalate 2564-83-2, TEMPO 2628-16-2,
4-Acetoxy styrene 224824-55-9
(synthesis of TEMPO-containing **alkoxyamine initiators**
for radical polymerization of styrene)
- IT 3245-23-6P, 4-(Acetoxy)ethylbenzene 154554-67-3P
562102-22-1P

(synthesis of TEMPO-containing **alkoxyamine initiators**
for radical polymerization of styrene)

REFERENCE COUNT: 74 THERE ARE 74 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L67 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:247383 HCAPLUS Full-text
DOCUMENT NUMBER: 134:281264
TITLE: Polymerization compositions using
nitrogen-containing free radicals
INVENTOR(S): Lai, John Ta-yuan; Filla, Deborah S.
PATENT ASSIGNEE(S): The B.F. Goodrich Company, USA
SOURCE: PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001023435	A1	20010405	WO 2000-US27038	20000929
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1259551	A1	20021127	EP 2000-968537	20000929
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
PRIORITY APPLN. INFO.:			US 1999-409329	A 19990930
			US 2000-172219P	P 20000110
			US 1999-172219P	P 19990930
			WO 2000-US27038	W 20000929

OTHER SOURCE(S): MARPAT 134:281264

ED Entered STN: 06 Apr 2001

AB Nitrogen-containing free radicals and free radical precursors are used to effect efficient, controlled polymerization of polymeric materials, including monomers, to form polymers, including homopolymers, copolymers, and block polymers. In particular, nitroxide compds., methods of making nitroxide compds., methods of using the nitroxide compds. to polymerize monomer compns., and polymer compns. made using the nitroxide compds. are disclosed. Thus, heating tetramethylmorpholine 8.64 with p-xylene 2.66 and Mo oxide 0.2 at reflux, dropwisely adding tert-Bu hydroperoxide (I) 16 over 1 h, refluxing for 20 min, further adding I 20 g while heating for another 1 h and working up gave an adduct useful for radical precursor.

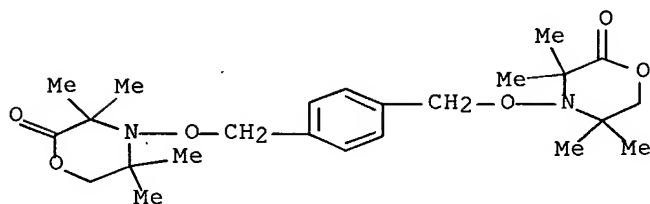
IT 332380-43-5P 332380-44-6P

(radical polymerization **initiator** precursor; polymerization compns.
using nitrogen-containing free radicals)

RN 332380-43-5 HCAPLUS

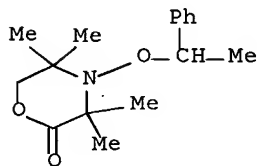
CN 2-Morpholinone, 4,4'-[1,4-phenylenebis(methyleneoxy)]bis[3,3,5,5-

tetramethyl- (9CI) (CA INDEX NAME)



RN 332380-44-6 HCAPLUS

CN 2-Morpholinone, 3,3,5,5-tetramethyl-4-(1-phenylethoxy)- (CA INDEX NAME)



IC ICM C08F004-00

ICS C08F002-38; C08F293-00; C07D265-32; C07D241-08; C07C239-20

CC 35-3 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): 67

ST morpholine xylene adduct radical polymn **initiator**IT Polymerization **catalysts**

(polymerization compns. using nitrogen-containing free radicals)

IT 1313-27-5, Molybdenum oxide, uses

(nitroxide forming **catalysts**; polymerization compns. using nitrogen-containing free radicals)IT **332380-43-5P 332380-44-6P**(radical polymerization **initiator** precursor; polymerization compns. using nitrogen-containing free radicals)

IT 113872-32-5P

(radical polymerization **initiator**; polymerization compns. using nitrogen-containing free radicals)

IT 100-41-4, Ethylbenzene, reactions 106-42-3, p-Xylene, reactions

90032-83-0, 3,3,5,5-Tetramethyl-2-morpholinone

(reactant for polymerization **initiator** precursor; polymerization compns. using nitrogen-containing free radicals)

REFERENCE COUNT:

4

THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L67 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:229230 HCAPLUS Full-text

DOCUMENT NUMBER: 135:33673

TITLE:

Thermolysis of Free-Radical **Initiators**:
tert-Butylazocumene and Its 1,3- and 1,4-Bisazo
and 1,3,5-Trisazo Analogues

AUTHOR(S): Engel, Paul S.; Pan, Li; Ying, Yunming; Alemany, Lawrence B.
 CORPORATE SOURCE: Department of Chemistry, Rice University, Houston, TX, 77251, USA
 SOURCE: Journal of the American Chemical Society (2001), 123(16), 3706-3715
 CODEN: JACSAT; ISSN: 0002-7863
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 01 Apr 2001

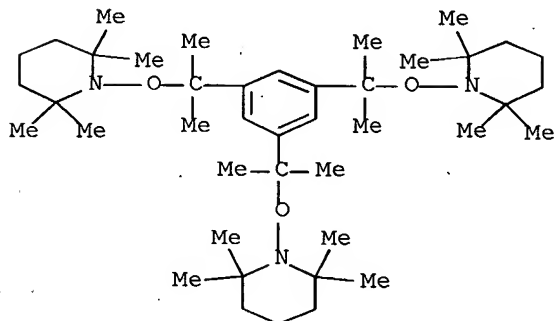
AB Four tert-butylazocumenes (I-IV) were prepared from the corresponding cyanobenzenes, and their nitrogen evolution kinetics and products were analyzed. In combination with TEMPO, the simplest compound, tert-butylazocumene (I), shows promise as a "one-radical" **initiator** of styrene polymerization. An ABNO-trapped cumyl radical is a particularly stable trialkylhydroxylamine, whose thermolysis half-life is 2.1 h at 150 °C. Taking advantage of this stability, we trapped the cumyl radical centers from IV to afford tris adduct. While the behavior of the meta bisazoalkane III can be mostly predicted from that of I, the para isomer II exhibits both unusual products and kinetics, attributed to the formation of quinodimethane via azo-containing radical. Finally, evidence is presented that IV is a possible **initiator** of star polymerization of Me methacrylate.

IT 344299-94-1P 344299-95-2P 344299-99-6P

(thermolysis of the free-radical **initiators** 1,3- and 1,4-bisazo and 1,3,5-trisazo tert-butylazocumene analogs)

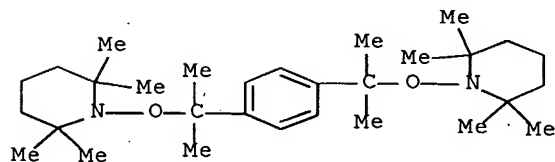
RN 344299-94-1 HCAPLUS

CN Piperidine, 1,1',1''-[1,3,5-benzenetriyltris[(1-methylethylidene)oxy]]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 344299-95-2 HCAPLUS

CN Piperidine, 1,1'-[1,4-phenylenebis[(1-methylethylidene)oxy]]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



DOCUMENT NUMBER: 132:152244
 TITLE: Synthesis and properties of polymeric networks prepared by "living" free radical polymerization and end-linking processes
 AUTHOR(S): Chaumont, Philippe; Asgarzadeh, Firouz; Ourdouillie, Pascal; Beyou, Emmanuel; Mechin, Françoise; Dumon, Michel
 CORPORATE SOURCE: Unite Mixte de Recherches "Ingenierie des Materiaux Macromoleculaires", Universite, Villeurbanne, 69622, Fr.
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(2), 366-367
 CODEN: ACPPAY; ISSN: 0032-3934
 PUBLISHER: American Chemical Society, Division of Polymer Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 02 Sep 1999

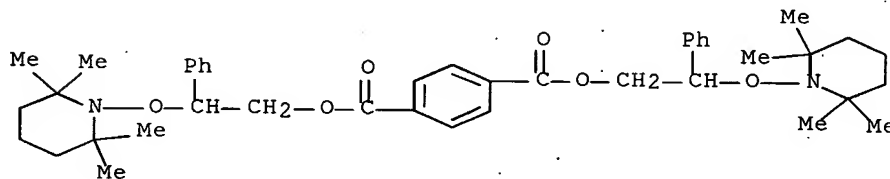
AB Polymer networks were synthesized by "living" free radical polymerization, i.e. the free radical synthesis of difunctional precursors, followed by the crosslinking of these precursors. Three types of controlled polymerization were studied to prepare the precursors and the networks: (a) reversible termination with nitroxide type control agents, (b) atom transfer radical polymerization, and (c) radical addition-fragmentation transfer. The structure and the swelling properties of the gels formed were studied.

IT 257955-86-5P

(free radical control agent; for living free radical polymerization by reversible termination with nitroxide radicals)

RN 257955-86-5 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl] ester (9CI) (CA INDEX NAME)



CC 35-4 (Chemistry of Synthetic High Polymers)

IT 257955-86-5P

(free radical control agent; for living free radical polymerization by reversible termination with nitroxide radicals)

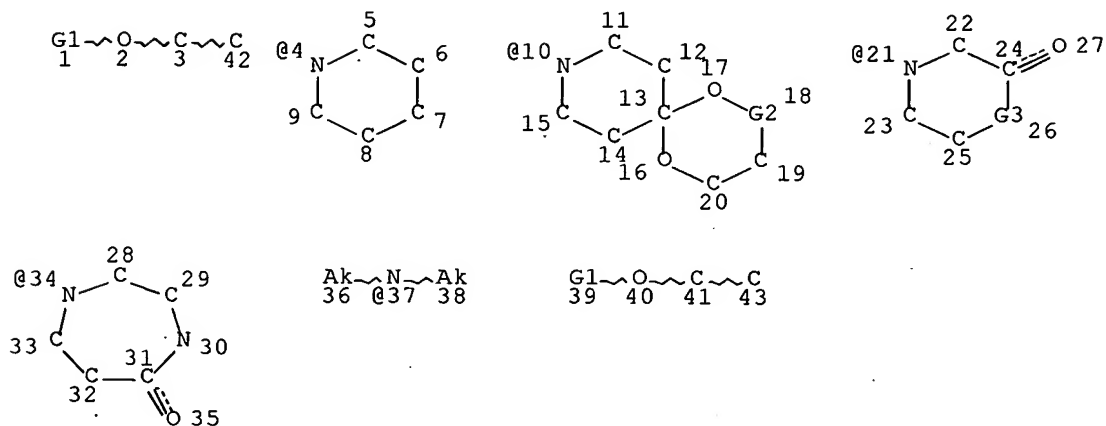
IT 78-67-1, AIBN 7787-70-4, Copper bromide (CuBr) 71071-44-8, 4,4'-Di-n-heptyl-2,2'-bipyridine

(polymerization catalyst; synthesis and properties of polymeric networks prepared by living free radical polymerization and end-linking processes)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d que 168

L1 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US20050215691/PN
 L5 STR



VAR G1=4/10/21/34/37

REP G2=(0-1) CH2

VAR G3=O/N

NODE ATTRIBUTES:

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NSPEC IS RC AT 43

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

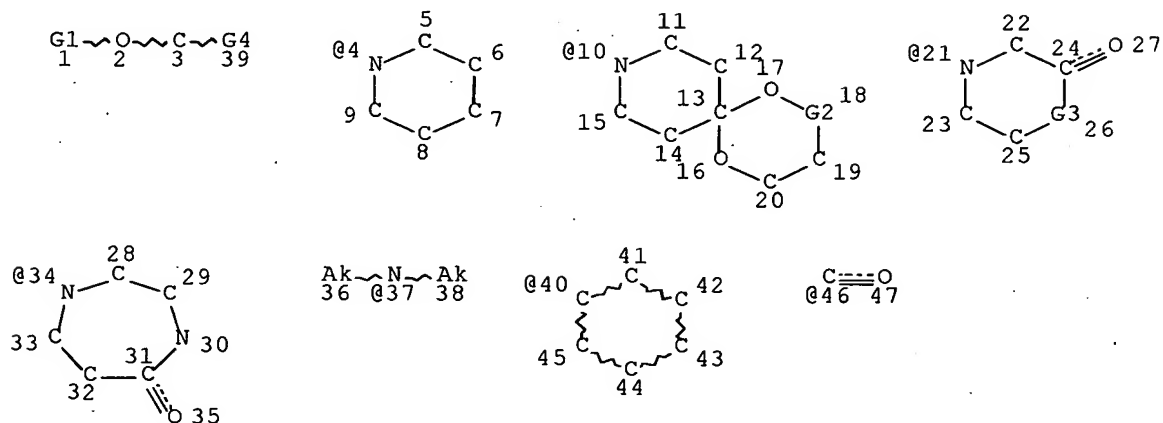
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 43

STEREO ATTRIBUTES: NONE

L9 STR



VAR G1=4/10/21/34/37

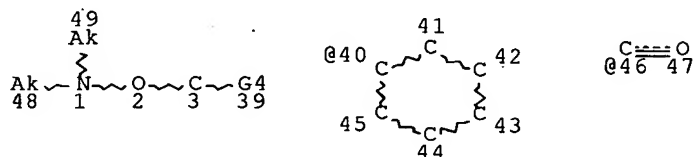
REP G2=(0-1) CH2

VAR G3=O/N
 VAR G4=46/40
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 47

STEREO ATTRIBUTES: NONE

L11 7221 SEA FILE=REGISTRY SSS FUL L9
 L14 694 SEA FILE=REGISTRY SUB=L11 SSS FUL L5
 L17 STR

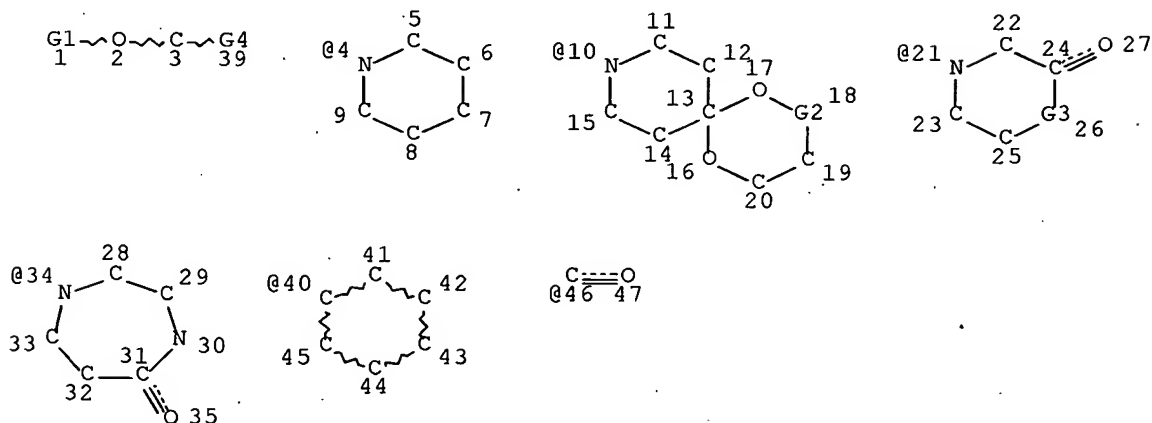


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 CONNECT IS E1 RC AT 48
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 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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 NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE

L19 240 SEA FILE=REGISTRY SUB=L11 SSS FUL L17
 L21 STR



VAR G1=4/10/21/34
 REP G2=(0-1) CH2
 VAR G3=O/N
 VAR G4=46/40

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

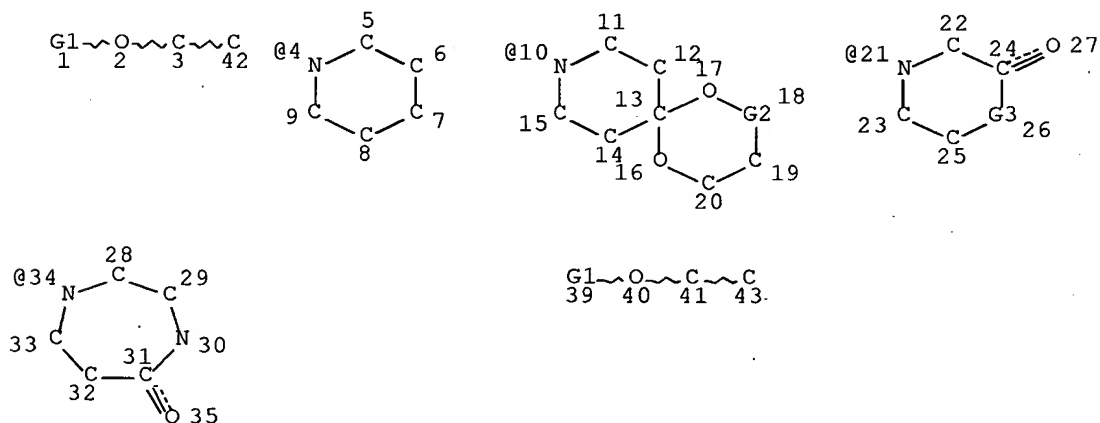
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 44

STEREO ATTRIBUTES: NONE

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 L24 262 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L25 144 SEA FILE=HCAPLUS ABB=ON PLU=ON L19
 L29 209 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 (L) PREP/RL
 L32 74 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 AND (PLASTIC? OR
 POLYMER?)/SC, SX
 L33 60 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND (INITIAT? OR
 CATALYST? OR ACTIVAT?)
 L34 58 SEA FILE=HCAPLUS ABB=ON PLU=ON L33 NOT L19
 L35 STR



VAR G1=4/10/21/34

REP G2=(0-1) CH2

VAR G3=O/N

NODE ATTRIBUTES:

NSPEC IS RC AT 42

NSPEC IS RC AT 43

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

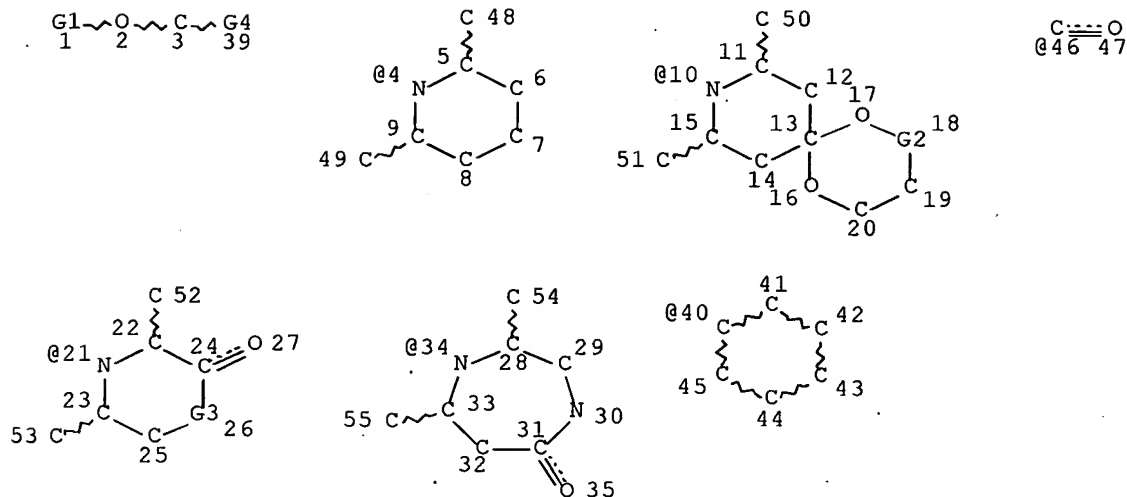
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 40

STEREO ATTRIBUTES: NONE

L37 198 SEA FILE=REGISTRY SUB=L14 SSS FUL L35
 L38 96 SEA FILE=HCAPLUS ABB=ON PLU=ON L37
 L39 40 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND L38
 L42 STR



VAR G1=4/10/21/34

REP G2=(0-1) CH2

VAR G3=O/N

VAR G4=46/40

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 52

STEREO ATTRIBUTES: NONE

L44	1677	SEA FILE=REGISTRY SUB=L23 SSS FUL L42
L45	614	SEA FILE=HCAPLUS ABB=ON PLU=ON L44
L46	399	SEA FILE=HCAPLUS ABB=ON PLU=ON L45(L) PREP/RL
L47	271	SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND (PLASTIC? OR POLYMER?)/SC, SX
L48	208	SEA FILE=HCAPLUS ABB=ON PLU=ON L47 AND (INITIAT? OR CATALYST? OR ACTIVAT?)
L49	1	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L1
L50	2	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND CLAY?
L51	4	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND POF/RL
L52	174	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND CAT/RL
L53	6	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND MOA/RL
L54	15	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND (PEP OR PYP)/RL
L55	22	SEA FILE=HCAPLUS ABB=ON PLU=ON (L49 OR L50 OR L51) OR (L53 OR L54)
L56	13	SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND L46
L57	35	SEA FILE=HCAPLUS ABB=ON PLU=ON L55 OR L56
L58	6	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 AND ALKOXYAMINE INITIATOR?
L59	40	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 OR L58
L60	5	SEA FILE=HCAPLUS ABB=ON PLU=ON L57 AND ALKOXYAMINE INITIATOR?
L61	35	SEA FILE=HCAPLUS ABB=ON PLU=ON L57 OR L60
L62	26	SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND ALKOXYAMINE INITIATOR?
L63	26	SEA FILE=HCAPLUS ABB=ON PLU=ON L62 AND (PLASTIC? OR

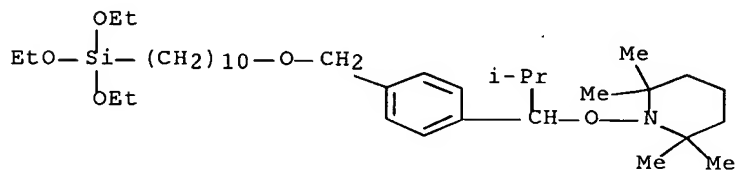
POLYMER?)/SC, SX

L64	56	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L61 OR L63
L65	6	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L38 AND ALKOXYAMINE INITIATOR?
L66	40	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L59 OR L65
L67	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L64 AND L66
L68	46	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L64 NOT L67

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E58 THROUGH E256 ASSIGNED

=> d l68 1-46 ibib ed abs fhitstr hitind

L68 ANSWER 1 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2007:772026 HCAPLUS Full-text
 DOCUMENT NUMBER: 147:323380
 TITLE: Site-selective surface-initiated
 polymerization by Langmuir-Blodgett lithography
 AUTHOR(S): Brinks, Marion K.; Hirtz, Michael; Chi, Lifeng;
 Fuchs, Harald; Studer, Armido
 CORPORATE SOURCE: Organisch-Chemisches Institut and NRW Graduate
 School of Chemistry, Westfaelische
 SOURCE: Wilhelms-Universitaet, Muenster, 48149, Germany
 Angewandte Chemie, International Edition (2007),
 46(27), 5231-5233
 CODEN: ACIEF5; ISSN: 1433-7851
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 147:323380
 ED Entered STN: 17 Jul 2007
 AB Brushing the surface: Structured polymer brushes are readily prepared by site-
 selective immobilization of **initiators** in a self-assembly process by Langmuir-
 Blodgett lithog. with subsequent polymerization The AFM images show a
 DPPC/alkoxy amine LB film before and after surface-initiated controlled
 nitroxide-mediated radical polymerization Large surface areas (several cm²)
 can readily be structured with this method.
 IT **947770-00-5P**
 (synthesis of alkoxy amines and site-selective immobilization
 thereof by Langmuir-Blodgett lithog. for preparation of polymer brushes)
 RN 947770-00-5 HCAPLUS
 CN Piperidine, 2,2,6,6-tetramethyl-1-[2-methyl-1-[4-[[[10-
 (triethoxysilyl)decyl]oxy]methyl]phenyl]propoxy]- (CA INDEX NAME)



CC 35-4 (Chemistry of Synthetic High **Polymers**)
 ST **initiator** lithog nitroxide radical polymn polymer brush
 prepn

- IT Lithography
Self-assembly
(for site-selective immobilization of **initiators** for preparation of polymer brushes)
- IT Polymerization
(graft; preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT Polymer brushes
(preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT Polymerization
(radical; preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT Polymerization **catalysts**
(radical; synthesis of alkoxy amines and site-selective immobilization thereof by Langmuir-Blodgett lithog. for preparation of polymer brushes)
- IT Polymerization
(surface; preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT 9003-49-0P, Butyl acrylate homopolymer 9003-53-6P, Polystyrene
(grafted on silica layer on silicon wafer; preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT 154554-67-3 897033-80-6
(preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT 63-89-8, L- α -Dipalmitoylphosphatidylcholine
(preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT 7631-86-9P, Silica, preparation
(surface layer, polystyrene- or poly(Bu acrylate)-grafted; preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)
- IT 947770-00-5P 947770-04-9P
(synthesis of alkoxy amines and site-selective immobilization thereof by Langmuir-Blodgett lithog. for preparation of polymer brushes)
- IT 947769-94-0P 947769-95-1P 947769-96-2P
947769-97-3P 947769-98-4P 947769-99-5P
947770-01-6P 947770-02-7P 947770-03-8P
(synthesis of alkoxy amines and site-selective immobilization thereof by Langmuir-Blodgett lithog. for preparation of polymer brushes)
- IT 7440-21-3, Silicon, miscellaneous
(wafer, substrate; preparation of polymer brushes with site-selective immobilization of **initiators** by Langmuir-Blodgett lithog. and subsequent radical polymerization)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L68 ANSWER 2 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:221012 HCAPLUS Full-text
DOCUMENT NUMBER: 146:442107

TITLE: Highly controlled living radical polymerization through dual **activation** of organobismuthines

AUTHOR(S): Yamago, Shigeru; Kayahara, Eiichi; Kotani, Masashi; Ray, Biswajit; Kwak, Yungwan; Goto, Atsushi; Fukuda, Takeshi

CORPORATE SOURCE: Div. Mol. Mater. Sci., Grad. Sch. Sci., Osaka City Univ., Osaka, 558-8585, Japan

SOURCE: Angewandte Chemie, International Edition (2007), 46(8), 1304-1306
CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 146:442107

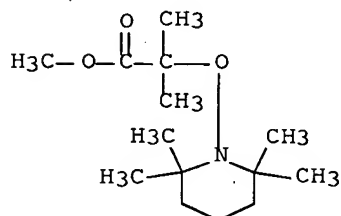
ED Entered STN: 01 Mar 2007

AB Organobismuthines promote highly controlled living radical polymerization through two **activation** mechanisms, namely, thermal generation and degenerative transfer. Both conjugated and nonconjugated vinyl monomers are polymerized to give well-defined polymers with predetd. mol. weight (Mn) and low polydispersity index (PDI).

IT 115191-52-1P
(highly controlled living radical polymerization of vinyl monomers through dual **activation** of organobismuthines)

RN 115191-52-1 HCAPLUS

CN Propanoic acid, 2-methyl-2-[(2,2,6,6-tetramethyl-1-piperidinyloxy)-, methyl ester (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

ST vinyl monomer living radical polymn organobismuthine **activation** mechanism

IT Polymerization
Polymerization **catalysts**
Polymerization kinetics
(living, radical; highly controlled living radical polymerization of vinyl monomers through dual **activation** of organobismuthines)

IT 934733-52-5P 934733-53-6P
(highly controlled living radical polymerization of vinyl monomers through dual **activation** of organobismuthines)

IT 100-42-5, Styrene, reactions
(highly controlled living radical polymerization of vinyl monomers through dual **activation** of organobismuthines)

IT 6180-99-ODP, Tributyltin deuteride, reaction products with polystyrene and organobismuthines 9003-39-8P, Poly(N-vinylpyrrolidone)
9003-49-0P, Poly(butyl acrylate) 9003-53-6DP, Polystyrene, reaction products with organobismuthines and tributyltin deuteride
9003-53-6P, Polystyrene 9011-14-7P, Poly(methyl methacrylate)

21735-64-8P 25189-55-3P, Poly(N-isopropylacrylamide)
115191-52-1P 733045-97-1P, Styrene-N-vinylpyrrolidone
 diblock copolymer 934733-52-5DP, reaction products with polystyrene
 and tributyltin deuteride

(highly controlled living radical polymerization of vinyl monomers through
 dual **activation** of organobismuthines)

IT 78-82-0, Isobutyronitrile 80-62-6 141-32-2 547-63-7, Methyl
 isobutyrate 2210-25-5 4540-16-3 7529-35-3, Dimethylbromobismuth
 39248-62-9, Diphenylbismuth bromide

(preparation of organobismuthines for highly controlled living radical
 polymerization of vinyl monomers through dual **activation** of
 organobismuthines)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 3 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1183825 HCAPLUS Full-text

DOCUMENT NUMBER: 146:101482

TITLE: Stabilization of polystyrene thin films against
 dewetting by silsesquioxane-terminated polystyrene
 additives

AUTHOR(S): Miyamoto, Kyota; Hosaka, Nao; Otsuka, Hideyuki;
 Takahara, Atsushi

CORPORATE SOURCE: Graduate School of Engineering, Kyushu University,
 Higashi-ku, Fukuoka, 812-8581, Japan

SOURCE: Chemistry Letters (2006), 35(10), 1098-1099

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 146:101482

ED Entered STN: 10 Nov 2006

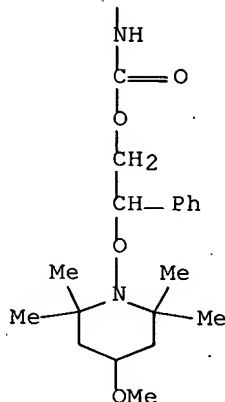
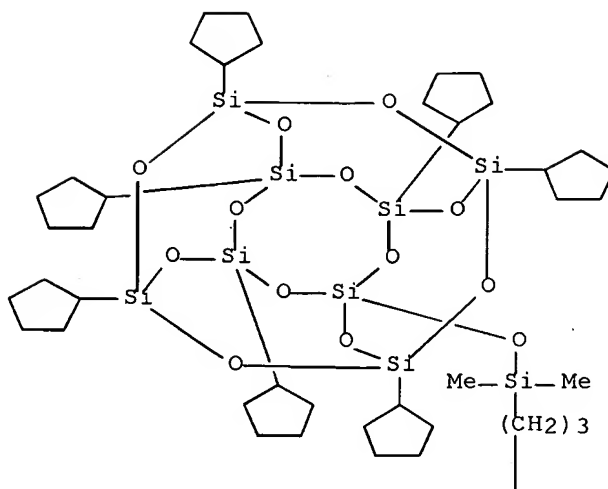
AB A polyhedral oligomeric silsesquioxane (POSS)-containing **initiator** for
 nitroxide-mediated radical polymerization was synthesized to prepare organic-
 inorg. hybrid polymers (PS-POSS), which are polystyrene (PS) with a POSS end
 group. PS-POSS were well dispersed in PS thin films and provided thermal
 stability to films against dewetting.

IT **917594-78-6P**

(stabilization of polystyrene thin films against dewetting by
 silsesquioxane-terminated polystyrene additives prepared by using
 polyhedral oligomeric silsesquioxane-containing nitroxide derivative as
 radical polymerization **catalyst**)

RN 917594-78-6 HCAPLUS

CN Carbamic acid, N-[3-[[[(3,5,7,9,11,13,15-heptacyclopentylpentacyclo[9.5
 .1.13,9.15,15.17,13]octasiloxan-1-yl)oxy]dimethylsilyl]propyl]-,
 2-[(4-methoxy-2,2,6,6-tetramethyl-1-piperidinyl)oxy]-2-phenylethyl
 ester (CA INDEX NAME)



- CC 37-3 (**Plastics** Manufacture and Processing)
- ST polyhedral oligomeric silsesquioxane terminated polystyrene prepn;
nitroxide deriv oligomeric silsesquioxane group **initiator**
polystyrene polymn
- IT Wetting
(dewetting; stabilization of polystyrene thin films against
dewetting by silsesquioxane-terminated polystyrene additives prepared
by using polyhedral oligomeric silsesquioxane-containing nitroxide
derivative as radical polymerization **catalyst**)
- IT Polymerization
Polymerization **catalysts**
(radical; stabilization of polystyrene thin films against dewetting
by silsesquioxane-terminated polystyrene additives prepared by using
polyhedral oligomeric silsesquioxane-containing nitroxide derivative as
radical polymerization **catalyst**)
- IT 917594-78-6P

(stabilization of polystyrene thin films against dewetting by silsesquioxane-terminated polystyrene additives prepared by using polyhedral oligomeric silsesquioxane-containing nitroxide derivative as radical polymerization **catalyst**)

IT 9003-53-6DP, Polystyrene, polyhedral oligomeric silsesquioxane group-terminated
(stabilization of polystyrene thin films against dewetting by silsesquioxane-terminated polystyrene additives prepared by using polyhedral oligomeric silsesquioxane-containing nitroxide derivative as radical polymerization **catalyst**)

IT 9003-53-6, Polystyrene
(stabilization of polystyrene thin films against dewetting by silsesquioxane-terminated polystyrene additives prepared by using polyhedral oligomeric silsesquioxane-containing nitroxide derivative as radical polymerization **catalyst**)

IT 352538-81-9 491588-90-0
(stabilization of polystyrene thin films against dewetting by silsesquioxane-terminated polystyrene additives prepared by using polyhedral oligomeric silsesquioxane-containing nitroxide derivative as radical polymerization **catalyst**)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:681741 HCAPLUS Full-text

DOCUMENT NUMBER: 145:293386

TITLE: Synthesis of poly(methyl methacrylate)-b-polystyrene containing a crown ether unit at the junction point via combination of atom transfer radical polymerization and nitroxide mediated radical polymerization routes

AUTHOR(S): Altintas, Ozcan; Yilmaz, Ismail; Hizal, Gurkan; Tunca, Umit

CORPORATE SOURCE: Department of Chemistry, Istanbul Technical University, Istanbul, 34469, Turk.

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2006), 44(10), 3242-3249
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 14 Jul 2006

AB Poly(Me methacrylate)-b-polystyrene (PMMA-b-PS) containing a benzo-15-crown-5 unit at the junction point was prepared by combining atom transfer radical polymerization and nitroxide-mediated radical polymerization For this purpose, 6,7,9,10,12,13,15,16-octahydro-5,8,11,14,17-pentaoxa- benzocyclopentadecene-2-carboxylic acid 3-(2-bromo-2-methyl- propionyloxy)-2-methyl-2-[2-phenyl-2-(2,2,6,6-tetramethyl-piperidin-1- yloxy)-ethoxycarbonyl]-Pr ester (I) was synthesized and used as an **initiator** in atom transfer radical polymerization of Me methacrylate in the presence of CuCl and pentamethyldiethylenetriamine at 60°. A linear behavior was observed in both plots of $\ln([M]_0/[M])$ vs. time and M_n , GPC vs. conversion indicating that the polymerization proceeded in a controlled/living manner. Thus obtained PMMA precursor was used as a macroinitiator in nitroxide-mediated radical polymerization of styrene (St) at 125° to give well-defined PMMA-b-PS with crown ether per chain. Kinetic data were also obtained for copolymer. Moreover, potassium picrate (K⁺ picrate) complexation of I and PMMA-b-PS copolymer was studied.

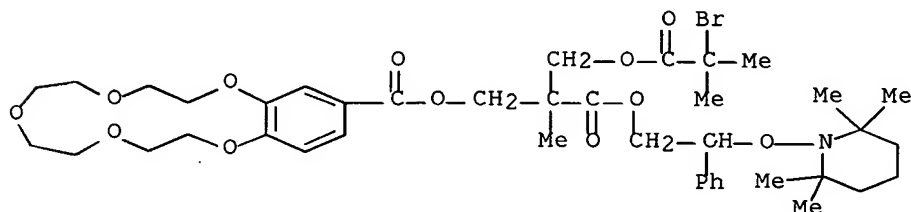
IT 908128-11-0P

(**initiator**; synthesis of poly(Me methacrylate)-b-

polystyrene containing crown ether unit at junction point via combination of atom transfer radical polymerization and nitroxide mediated radical polymerization routes)

RN 908128-11-0 HCAPLUS

CN 1,4,7,10,13-Benzopentaoxacyclopentadecin-15-carboxylic acid, 2,3,5,6,8,9,11,12-octahydro-, 2-[(2-bromo-2-methyl-1-oxopropoxy)methyl]-2-methyl-3-oxo-3-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethoxy]propyl ester (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

ST polymethyl methacrylate polystyrene diblock copolymer crown ether nitroxide **initiator**; atom transfer radical polymn polymethyl methacrylate polystyrene diblock copolymer

IT Polymerization

Polymerization **catalysts**

Polymerization kinetics

(atom transfer, radical; synthesis of poly(Me methacrylate)-b-polystyrene containing crown ether unit at junction point via combination of atom transfer radical polymerization and nitroxide mediated radical polymerization routes)

IT 908128-11-0P

(**initiator**; synthesis of poly(Me methacrylate)-b-polystyrene containing crown ether unit at junction point via combination of atom transfer radical polymerization and nitroxide mediated radical polymerization routes)

IT 9011-14-7DP, Poly(methyl methacrylate), reaction products with nitroxide-containing benzo-15-crown-5 derivs. 908128-11-0DP, reaction products with poly(Me methacrylate)

(macroinitiator; synthesis of poly(Me methacrylate)-b-polystyrene containing crown ether unit at junction point via combination of atom transfer radical polymerization and nitroxide mediated radical

polymerization

routes)

REFERENCE COUNT:

24

THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 5 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:632708 HCAPLUS Full-text

DOCUMENT NUMBER: 145:231158

TITLE: Exfoliated Block Copolymer/Silicate Nanocomposites by One-Pot, One-Step in-Situ Living Polymerization from Silicate-Anchored Multifunctional **Initiator**

AUTHOR(S): Di, Jianbo; Sogah, Dotsevi Y.

CORPORATE SOURCE: Baker Laboratory, Department of Chemistry and Chemical Biology, Cornell University, Ithaca, NY,

SOURCE: 14853-1301, USA
 Macromolecules (2006), 39(15), 5052-5057
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 30 Jun 2006

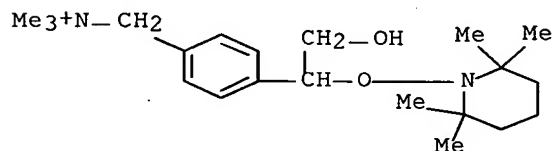
AB Poly(styrene-*b*-caprolactone)/silicate nanocomposites were prepared via one-pot, one-step in-situ living polymerization from a silicate-anchored bifunctional **initiator**. The random dispersion of the silicate layers in the polymer matrix was confirmed by both XRD and STEM. The polymer chains were attached to the surface of the silicate layers at the junction between the two blocks. SEC and NMR confirmed the block structure of the polymer. Through simultaneous incorporation of the **initiator** and benzyltrimethylammonium salt as a noninitiator into the silicate nanocomposites containing higher mol. weight polymers were obtained. The mol. wts. of the polymers and the silicate content of the nanocomposites were also controlled. Characterization by XRD and DSC showed that the poly(caprolactone) segment existed in a crystalline state.

IT **887369-62-2P**

(ATRP **initiator**, clay anchored; preparation of multifunctional **initiator** for living polymerization to prepare exfoliated block copolymer/silicate nanocomposites)

RN 887369-62-2 HCAPLUS

CN Benzenemethanaminium, 4-[2-hydroxy-1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]-N,N,N-trimethyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

CC 37-6 (**Plastics** Manufacture and Processing)

Section cross-reference(s): 35

ST styrene caprolactone block copolymer silicate nanocomposite multifunctional **initiator** ATRP

IT Polymerization

(atom transfer, living, radical; exfoliated block copolymer/silicate nanocomposites by one-pot, one-step in-situ living polymerization from silicate-anchored multifunctional **initiator**)

IT Intercalation

Nanocomposites

(exfoliated block copolymer/silicate nanocomposites by one-pot, one-step in-situ living polymerization from silicate-anchored multifunctional **initiator**)

IT Silicates, preparation

(intercalation product with ϵ -Caprolactone-styrene diblock copolymer; exfoliated block copolymer/silicate nanocomposites by one-pot, one-step in-situ living polymerization from silicate-anchored

multifunctional **initiator**)

IT 887369-62-2P
(ATRP **initiator**, **clay** anchored; preparation of multifunctional **initiator** for living polymerization to prepare exfoliated block copolymer/silicate nanocomposites)

IT 97-93-8, Triethyl aluminum, uses
(exfoliated block copolymer/silicate nanocomposites by one-pot, one-step in-situ living polymerization from silicate-anchored multifunctional **initiator**)

IT 1318-93-ODP, Montmorillonite, sodium-exchanged, intercalation product with ϵ -Caprolactone-styrene diblock copolymer 725712-80-1DP, ϵ -Caprolactone-styrene diblock copolymer, intercalation product with sodium-exchanged montmorillonite
(exfoliated block copolymer/silicate nanocomposites by one-pot, one-step in-situ living polymerization from silicate-anchored multifunctional **initiator**)

IT 75-50-3, Trimethylamine, reactions 196930-68-4
(preparation of multifunctional **initiator** for living polymerization to prepare exfoliated block copolymer/silicate nanocomposites)

IT 100-59-4, Phenyl magnesiumchloride
(preparation of multifunctional **initiator** for living polymerization to prepare exfoliated block copolymer/silicate nanocomposites)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 6 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1108314 HCAPLUS Full-text

DOCUMENT NUMBER: 144:433168

TITLE: New and improved routes to **alkoxyamine initiators** for controlled radical polymerisation

AUTHOR(S): Thiessen, Wladimir; Wolff, Thomas

CORPORATE SOURCE: Institut fuer Physikalische Chemie und Elektrochemie, Technische Universitaet Dresden, Dresden, D-01062, Germany

SOURCE: Designed Monomers and Polymers (2005), 8(5), 397-407

CODEN: DMPOF3; ISSN: 1385-772X

PUBLISHER: VSP

DOCUMENT TYPE: Journal

LANGUAGE: English

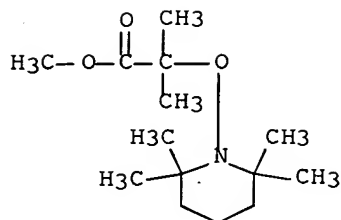
ED Entered STN: 17 Oct 2005

AB O-substituted, hydroxylamines were synthesized in almost quant. yields using ultrasound and Mn(OAc)₃ (in substance or regenerated in situ by an oxidizing agent) as electron-transfer agent. Two novel synthetic methods for the synthesis of alkoxyamines from organic halides and stable nitroxide radicals are introduced. One of them utilizes cyanocobalamin (vitamin B12), the other SmI₂ as catalyst and magnesium metal as reductive agent. The yields are good for the first method and excellent for the second. The initiators were tested in controlled radical polymerization of styrene, Me methacrylate and 4-vinylpyridine.

IT 115191-52-1P
(production of **alkoxyamine initiators** using Mn(OAc)₃ as electron-transfer agent for controlled radical polymerization)

RN 115191-52-1 HCAPLUS

CN Propanoic acid, 2-methyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, methyl ester (CA INDEX NAME)



- CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67
- ST **alkoxyamine initiator** controlled radical polymn
- IT Electron exchangers
Oxidizing agents
Sound and Ultrasound
(production of **alkoxyamine initiators** for controlled radical polymerization)
- IT Polymerization catalysts
(radical; production of **alkoxyamine initiators** for controlled radical polymerization)
- IT 993-02-2, Manganese triacetate
(electron-transfer agent; production of **alkoxyamine initiators** using Mn(OAc)₃ as electron-transfer agent for controlled radical polymerization)
- IT 9011-14-7P, Polymethylmethacrylate 25232-41-1P, Poly(4-vinylpyridine)
(polymerization of Me methacrylate using **alkoxyamine initiators** as controlled radical polymerization catalyst)
- IT 9003-53-6P, Polystyrene
(polymerization of styrene using **alkoxyamine initiators** as controlled radical polymerization catalyst)
- IT 115191-52-1P 213699-59-3P
(production of **alkoxyamine initiators** using Mn(OAc)₃ as electron-transfer agent for controlled radical polymerization)
- IT 80-62-6, Methylmethacrylate 100-42-5, Styrene, reactions 2564-83-2
2628-16-2 188526-94-5, tert-Butyl 1-(diethoxyphosphinyl)-2,2-dimethylpropyl nitroxide
(production of **alkoxyamine initiators** using Mn(OAc)₃ as electron-transfer agent for controlled radical polymerization)
- IT 144-55-8, Sodium bicarbonate, reactions
(production of **alkoxyamine initiators** using Mn(OAc)₃ as electron-transfer agent for controlled radical polymerization)
- IT 32248-43-4, Samarium diiodide
(production of **alkoxyamine initiators** using SmI₂ as catalyst for controlled radical polymerization)
- IT 224575-62-6P
(production of **alkoxyamine initiators** using SmI₂ as catalyst for controlled radical polymerization)
- IT 68-19-9, Vitamin B12
(production of **alkoxyamine initiators** using as vitamin B12 catalyst for controlled radical polymerization)
- IT 103-63-9P
(production of **alkoxyamine initiators** using as vitamin B12 catalyst for controlled radical polymerization)
- IT 154554-67-3P, 2,2,6,6-Tetramethyl-1-(1-phenylethoxy)piperidine
(production of **alkoxyamine initiators** using as vitamin B12 catalyst for controlled radical polymerization)

- IT 12125-02-9, Ammonium chloride, reactions
(production of **alkoxyamine initiators** using as
vitamin B12 catalyst for controlled radical polymerization)
- IT 7439-95-4, Magnesium, reactions
(reductive agent; production of **alkoxyamine
initiators** using SmI2 as catalyst for controlled radical
polymerization)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L68 ANSWER 7 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:609683 HCAPLUS Full-text

DOCUMENT NUMBER: 143:286754

TITLE: Nitroxide-Mediated Polymerization of
N-Isopropylacrylamide: Electrospray Ionization
Mass Spectrometry, Matrix-Assisted Laser
Desorption Ionization Mass Spectrometry, and
Multiple-Angle Laser Light Scattering Studies on
Nitroxide-Terminated Poly-N-isopropylacrylamides

AUTHOR(S): Schulte, Tobias; Siegenthaler, Kai Oliver;
Luftmann, Heinrich; Letzel, Matthias; Studer,
Armido

CORPORATE SOURCE: Organisch-Chemisches Institut, Westfaelische
Wilhelms-Universitaet Muenster, Muenster, D-48149,
Germany

SOURCE: Macromolecules (2005), 38(16), 6833-6840

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 15 Jul 2005

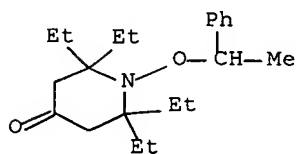
AB Nitroxide-mediated controlled living free radical polymerization of N-
isopropylacrylamide using highly sterically hindered 2,2,6,6-
tetraethylpiperidin-4-on-N-oxyl 1 is described. In addition, an improved
synthesis for nitroxide 1 is presented. Poly-N- isopropylacrylamides
(PNIPAMs) prepared are analyzed by multiple-angle laser light scattering.
Moreover, the nitroxide-terminated PNIPAMs are characterized using
electrospray ionization mass spectrometry, matrix-assisted laser desorption
ionization time-of-flight mass spectrometry (MALDI-TOF-MS), and Fourier
transform ion cyclotron MALDI-MS. Careful MS anal. reveals that chain-end
degradation of nitroxide-terminated PNIPAMs occurs during MALDI anal. A
mechanism for chain end degradation is presented.

IT **686778-17-6P**

(preparation of tetraethylpiperidinonoxyl and alkoxyamine-
initiated living radical polymerization of isopropylacrylamide and
study of structure and chain-end degradation of nitroxide-terminated
polyisopropylacrylamide)

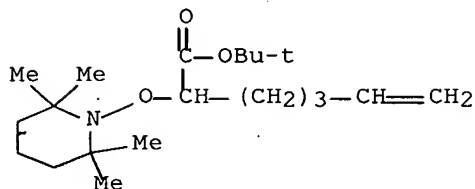
RN 686778-17-6 HCAPLUS

CN 4-Piperidinone, 2,2,6,6-tetraethyl-1-(1-phenylethoxy)- (CA INDEX
NAME)



- CC 35-4 (Chemistry of Synthetic High **Polymers**)
Section cross-reference(s): 27
- ST living radical polymn isopropylacrylamide **alkoxyamine initiator**; nitroxide terminated living polyisopropylacrylamide
mass spectrometry light scattering
- IT Polymer degradation
(chain end degradation mechanism; preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- IT Polymerization
Polymerization **catalysts**
(living, radical; preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- IT Electrospray ionization mass spectrometry
Light scattering
Photoionization mass spectrometry
(preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide using)
- IT **686778-17-6P**
(preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- IT 25189-55-3DP, N-Isopropylacrylamide homopolymer, alkoxyamine-terminated 686778-08-5DP, reaction products with poly(N-isopropylacrylamide)
(preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- IT 760-21-4, 2-Ethyl-1-butene 1189-71-5, Chlorosulfonyl isocyanate 24424-99-5, Di-tert-butyl dicarbonate
(preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- IT 89894-89-3P 864062-67-9P 864062-68-0P 864062-69-1P 864062-70-4P
(preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- IT 686778-08-5P
(preparation of tetraethylpiperidinonoxyl and alkoxyamine-**initiated** living radical polymerization of isopropylacrylamide and study of structure and chain-end degradation of nitroxide-terminated polyisopropylacrylamide)
- REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

DOCUMENT NUMBER: 143:59393
 TITLE: Tin-free radical alkoxyamine addition and isomerization reactions by using the persistent radical effect: Variation of the alkoxyamine structure
 AUTHOR(S): Molawi, Kian; Schulte, Tobias; Siegenthaler, Kai Oliver; Wetter, Christian; Studer, Armido
 CORPORATE SOURCE: Organisch Chemisches-Institut Westfaelische Wilhelms-Universitaet, Muenster, 48149, Germany
 SOURCE: Chemistry--A European Journal (2005), 11(8), 2335-2350
 CODEN: CEUJED; ISSN: 0947-6539
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 143:59393
 ED Entered STN: 28 Apr 2005
 AB Various C-centered radicals can efficiently be generated through thermal C-O-bond homolysis of alkoxyamines. This method is used to perform environmentally benign radical cyclization and intermol. addition reactions. These alkoxyamine isomerizations and intermol. carboaminoxylations are mediated by the persistent radical effect (PRE). In the paper, the effect of the variation of the alkoxyamine structure-in particular steric effects in the nitroxide moiety-on the outcome of the PRE mediated radical reactions will be discussed. Fourteen different nitroxides were used in the studies. It will be shown that reaction times can be shortened about 100 times upon careful tuning of the alkoxyamine structure. Activation energies for the C-O-bond homolysis of the various alkoxyamines are provided. The kinetic data are used to explain the reaction outcome of the PRE-mediated processes.
 IT **270901-55-8P**
 (tin-free radical alkoxyamine addition and isomerization reactions by using the persistent radical effect)
 RN 270901-55-8 HCAPLUS
 CN 6-Heptenoic acid, 2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, 1,1-dimethylethyl ester (CA INDEX NAME)



CC 22-4 (Physical Organic Chemistry)
 IT **270901-55-8P** 270901-57-0P 270901-58-1P
270901-83-2P 270901-84-3P **853886-27-8P**
 853886-33-6P 853886-36-9P 853886-37-0P 853886-40-5P
853886-44-9P **853886-48-3P** **853886-51-8P**
853886-55-2P **853886-56-3P** **853886-57-4P**
853886-58-5P **853886-59-6P** 853886-60-9P
 853886-65-4P 853886-66-5P **853886-67-6P**
853886-68-7P **853886-69-8P** **853886-70-1P**
 853886-77-8P 853886-79-0P **853886-81-4P**
853886-82-5P

(tin-free radical alkoxyamine addition and isomerization reactions by using the persistent radical effect)

IT 853886-26-7P

(tin-free radical alkoxyamine addition and isomerization reactions by using the persistent radical effect)

IT 270901-60-5P 270901-70-7P 270901-72-9P 270901-89-8P
 270901-90-1P 270901-93-4P 270901-95-6P 675879-82-0P
 853886-20-1P 853886-21-2P 853886-22-3P 853886-23-4P
 853886-24-5P 853886-25-6P 853886-28-9P 853886-29-0P
 853886-30-3P 853886-31-4P 853886-32-5P 853886-34-7P
 853886-35-8P 853886-38-1P 853886-39-2P 853886-41-6P
 853886-42-7P 853886-43-8P 853886-45-0P 853886-46-1P
 853886-47-2P 853886-49-4P 853886-50-7P 853886-52-9P
 853886-53-0P 853886-54-1P 853886-61-0P 853886-62-1P
 853886-63-2P 853886-64-3P 853886-71-2P 853886-72-3P
 853886-73-4P 853886-74-5P 853886-75-6P 853886-76-7P
 853886-78-9P 853886-80-3P 853886-83-6P 853886-84-7P
 853886-85-8P 853886-86-9P 853904-90-2P

(tin-free radical alkoxyamine addition and isomerization reactions by using the persistent radical effect)

REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 9 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:686753 HCAPLUS Full-text

DOCUMENT NUMBER: 142:135004

TITLE: A novel method for the synthesis of
alkoxyamine initiators for
 nitroxide-mediated radical polymerization using
 Mn(OAc)₃ as electron-transfer reagent
 AUTHOR(S): Krause, T.; Habicher, W. D.; Messerschmidt, M.;
 Voit, B. I.
 CORPORATE SOURCE: Institut fuer Organische Chemie, Technische
 Universitaet Dresden, Dresden, 01062, Germany
 SOURCE: Designed Monomers and Polymers (2004), 7(4),
 391-397

CODEN: DMPOF3; ISSN: 1385-772X

PUBLISHER: VSP BV

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 23 Aug 2004

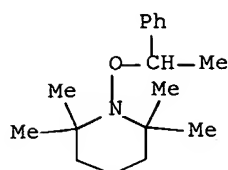
AB O-substituted hydroxylamines which are known to initiate and promote
 nitroxide-mediated radical polymerization were synthesized in high yield by a
 novel and facile synthetic approach. Using the favorable Mn(OAc)₃ as electron
 transfer agent in the in situ generation of benzylic radicals and their
 trapping by nitroxide radicals provides a new powerful and more economic way
 to the desired **alkoxyamine initiators** for this controlled, living radical
 polymerization. TEMPO, TIPNO and the protected tris-hydroxy derivative of
 TIPNO were used to synthesize the appropriate alkoxyamines.

IT 154554-67-3P

(synthesis of **alkoxyamine initiators** for
 nitroxide-mediated radical polymerization using Mn(OAc)₃ as
 electron-transfer reagent)

RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 IT Polymerization catalysts
 (synthesis of **alkoxyamine initiators** for
 nitroxide-mediated radical polymerization using Mn(OAc)3 as
 electron-transfer reagent)
 IT 993-02-2, Manganese triacetate
 (synthesis of **alkoxyamine initiators** for
 nitroxide-mediated radical polymerization using Mn(OAc)3 as
 electron-transfer reagent)
 IT **154554-67-3P** 330938-14-2P 824430-24-2P 824430-25-3P
 (synthesis of **alkoxyamine initiators** for
 nitroxide-mediated radical polymerization using Mn(OAc)3 as
 electron-transfer reagent)
 IT 100-42-5, reactions 2564-83-2 2628-16-2 61015-94-9 95418-58-9
 270901-77-4
 (synthesis of **alkoxyamine initiators** for
 nitroxide-mediated radical polymerization using Mn(OAc)3 as
 electron-transfer reagent)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 10 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:1007898 HCAPLUS Full-text

DOCUMENT NUMBER: 140:60153

TITLE: One-pot process for preparation of
 hydroxy-functionalized **alkoxyamine**
initiator and its use

INVENTOR(S): Detrembleur, Christophe; Gross, Thomas; Meyer,
 Rolf-Volker

PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany

SOURCE: U.S. Pat. Appl. Publ., 12 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003236368	A1	20031225	US 2003-464927	20030619
US 6686424	B2	20040203		
EP 1375457	A1	20040102	EP 2002-13949	20020625
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CA 2432964	A1	20031225	CA 2003-2432964	20030620
JP 2004107320	A	20040408	JP 2003-181155	20030625
PRIORITY APPLN. INFO.:			EP 2002-13949	A 20020625

OTHER SOURCE(S): MARPAT 140:60153

ED Entered STN: 28 Dec 2003

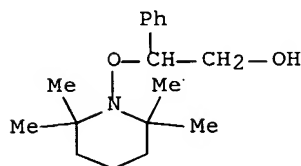
AB Functional alkoxyamines of the general formula $\text{HOC(R1)HCR2R3ONR4R5}$ [R1-3 = H, C1-20 (cyclo)alkyl, C6-24 aryl, halogen, cyano, C1-20 (cyclo)alkyl ester, C1-20(cyclo) alkylamido, C6-24 aryl ester, C6-24 arylamido group; R4-5 = optionally substituted C1-18 alk(e)nyl or alkynyl, C3-12 cycloalkyl, heterocycloalkyl, C6-24 aryl, etc., R4 and R5 together can make a ring, and optionally with N, O or S] are prepared by: (1) reacting an oxidizing agent with a sterically hindered secondary amine to produce an aqueous phase and a nitroxyl radical, and (2) removing the aqueous phase and adding to the nitroxyl radical one or more vinyl monomer(s) conforming to a formula and a system which produces free radicals. Also disclosed is a controlled radical process for polymerizing monomers using the functional alkoxyamine. Thus, a typical alkoxyamine such as 1-phenyl-1-(2',2',6',6'-tetramethyl-1'-piperidinyloxy)-2-hydroxyethane could be prepared from the reaction of Oxone with 2,2,6,6-tetramethylpiperidine, then with styrene and H_2O_2 .

IT 161776-41-6P

(one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

RN 161776-41-6 HCAPLUS

CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyloxy)]- (CA INDEX NAME)



IC ICM C08F002-00

ICS C08F004-00; C07D211-20; C07D223-08; C07D207-46; C07C255-62; C07C239-12

INCL 526220000; 540604000; 546248000; 548542000; 548950000; 558452000; 564300000; 564301000

CC 35-3 (Chemistry of Synthetic High Polymers)

IT Polymerization catalysts

(radical; one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

IT 161776-41-6P 637334-58-8P

(one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

IT 9003-53-6P, Polystyrene 9003-54-7P, Acrylonitrile-styrene copolymer 126639-07-4P, Acrylonitrile-methyl methacrylate-styrene block copolymer

(one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

IT 2564-83-2P, 2,2,6,6-Tetramethylpiperidine-N-oxide

(one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

IT 100-42-5, Styrene, reactions 768-66-1, 2,2,6,6-Tetramethylpiperidine 826-36-8, 2,2,6,6-Tetramethyl-4-piperidone

(one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

IT 7722-84-1, Hydrogen peroxide, reactions

(one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

- IT 79-21-0, Peracetic acid 37222-66-5, Oxone
(oxidizing agent; one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)
- IT 7782-63-0, Iron sulfate (FeSO₄) heptahydrate
(reducing agent for hydrogen peroxide; one-pot process for preparation of functionalized **alkoxyamine initiator** and its use)

L68 ANSWER 11 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:961305 HCAPLUS Full-text

DOCUMENT NUMBER: 140:146562

TITLE: Hydroxy- and Silyloxy-Substituted TEMPO
Derivatives for the Living Free-Radical
Polymerization of Styrene and n-Butyl Acrylate:
Synthesis, Kinetics, and Mechanistic Studies

AUTHOR(S): Knoop, Christoph Alexander; Studer, Armido

CORPORATE SOURCE: Department of Chemistry, Philipps-University
Marburg, Marburg, 35032, Germany

SOURCE: Journal of the American Chemical Society (2003),
125(52), 16327-16333

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Dec 2003

AB The synthesis of new 2,2,6,6-tetramethylpiperidin-1-oxyl (TEMPO) styryl derivs. as mediators for the living free-radical polymerization is described. Two of the α -Me groups at the 2- and 6-position of the parent TEMPO styryl alkoxyamine have been replaced by hydroxymethyl and silyloxymethyl groups. To further increase the steric hindrance around the alkoxyamine oxygen atom, the remaining two Me groups have been substituted with larger Et groups. Styrene polymns. using hydroxy-substituted TEMPO derivs. are fast, but are not well-controlled. As previously shown for other OH-substituted alkoxyamines, intramol. H-bonding leads to an acceleration of the C-O bond homolysis and, hence, to an acceleration of the polymerization process. However, the OH groups also increase the alkoxyamine decomposition rate constant. The kinetics of the C-O bond homolysis have been determined using EPR spectroscopy. Decomposition studies have been conducted with the aid of 1H NMR spectroscopy. In contrast to the OH-substituted alkoxyamines, highly hindered silyloxy-substituted TEMPO alkoxyamines turned out to be excellent mediator/**initiators** for the controlled styrene polymerization. Polystyrene with Mn of up to 80,000 g/mol and narrow polydispersities (PDI) has been prepared using the new alkoxyamines. Reactions have been conducted at 105°; however, even at 90° controlled but slow polymns. can be achieved. Furthermore, and more importantly, poly(Bu acrylates) with narrow PDIs (<1.15) have been prepared at 105° with the new alkoxyamines. Controlled acrylate polymerization can be conducted at temps. as low as 90°. The silylated alkoxyamines presented belong to the most efficient **initiator**/mediators for the controlled acrylate polymerization known to date. The effect of the addition of free nitroxide on the acrylate polymerization is discussed. Moreover, the synthesis of diblock copolymers with narrow PDIs is described.

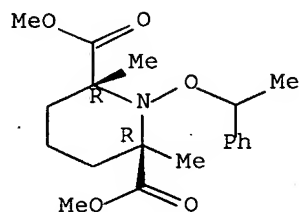
IT 651351-97-2P

(synthesis, kinetics, and mechanistic studies of hydroxy- and silyloxy-substituted tetramethylpiperidinoxyl derivs. for living free-radical polymerization of styrene and n-Bu acrylate)

RN 651351-97-2 HCAPLUS

CN 2,6-Piperidinedicarboxylic acid, 2,6-dimethyl-1-(1-phenylethoxy)-, dimethyl ester, (2R,6R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST hydroxy silyloxy substituted tetramethylpiperidinoxyl deriv styrene
 living radical polymn; butyl acrylate living radical polymn hydroxy
 silyloxy tetramethylpiperidinoxyl deriv; kinetics living radical
 polymn hydroxy silyloxy tetramethylpiperidinoxyl deriv
initiator
 IT Polymerization **catalysts**
 (living, radical; synthesis, kinetics, and mechanistic studies of
 hydroxy- and silyloxy-substituted tetramethylpiperidinoxyl derivs.
 for living free-radical polymerization of styrene and n-Bu acrylate)
 IT 651351-97-2P 651351-99-4P 651352-01-1P
 651352-03-3P 651352-05-5P 651352-07-7P
 651352-09-9P 651352-11-3P
 (synthesis, kinetics, and mechanistic studies of hydroxy- and
 silyloxy-substituted tetramethylpiperidinoxyl derivs. for living
 free-radical polymerization of styrene and n-Bu acrylate)
 IT 651352-12-4P 651352-13-5P 651352-15-7P
 651352-17-9P 651352-19-1P 651352-21-5P
 651352-25-9P
 (synthesis, kinetics, and mechanistic studies of hydroxy- and
 silyloxy-substituted tetramethylpiperidinoxyl derivs. for living
 free-radical polymerization of styrene and n-Bu acrylate)
 REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 12 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:719523 HCAPLUS Full-text
 DOCUMENT NUMBER: 139:246324
 TITLE: Open-chain alkoxyamines and their corresponding
 nitroxides for controlled low-temperature radical
 polymerization
 INVENTOR(S): Hintermann, Tobias; Nesvadba, Peter; Kramer,
 Andreas; Fink, Jochen
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
 SOURCE: PCT Int. Appl., 59 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003074572	A1	20030912	WO 2003-EP1895	20030225

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2477728	A1	20030912	CA 2003-2477728	20030225
AU 2003212272	A1	20030916	AU 2003-212272	20030225
EP 1481012	A1	20041201	EP 2003-708135	20030225
EP 1481012	B1	20060517		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

JP 2005519121	T	20050630	JP 2003-573037	20030225
CN 1639201	A	20050713	CN 2003-805021	20030225
AT 326487	T	20060615	AT 2003-708135	20030225
ES 2263957	T3	20061216	ES 2003-708135	20030225
MX 2004PA08321	A	20041126	MX 2004-PA8321	20040827
US 2005124814	A1	20050609	US 2004-506700	20040902
US 7297819	B2	20071120		

PRIORITY APPLN. INFO.:

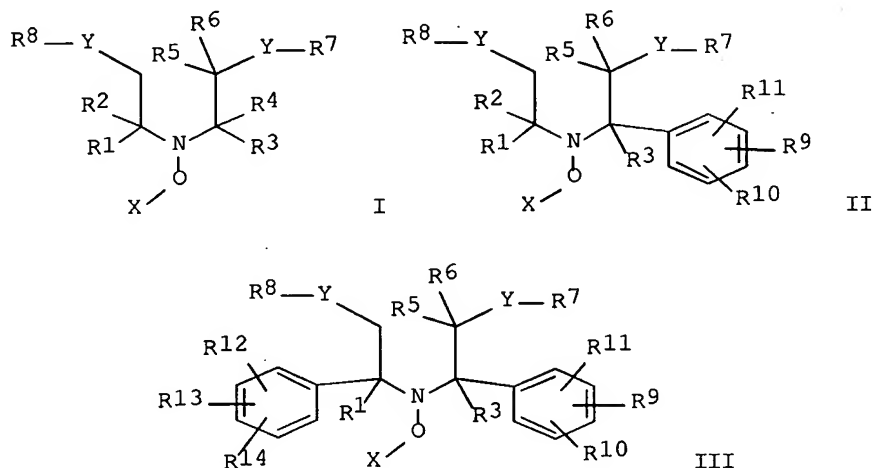
EP 2002-405168 A 20020305

WO 2003-EP1895 W 20030225

OTHER SOURCE(S): MARPAT 139:246324

ED Entered STN: 14 Sep 2003

GI



AB Alkoxyamines I, II, and III [Y = O or NR; R = H or C1-18 alkyl; R7 and(or) R8 with R and N to which they are bonded form 5-6-membered ring; R1-3 = organic; R4 = C2-12 alkyl; R5, R6 = H, C1-18 alkyl, C2-18 alkenyl, benzyl, C5-12 cycloalkyl, or Ph; R7, R8 = H or organic; R9-14 = H, OH, SH, or organic; X = organic] are useful for enhancing the polymerization rates and monomer-to-polymer conversions of ethylenically unsatd. compds. at $\leq 100^\circ$. The

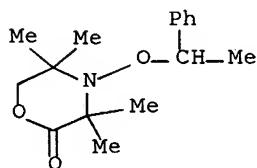
intermediate N-oxyl derivs., a composition of the N-oxyl derivs. with ethylenically unsatd. monomers and a free radical initiator X•, as well as a process and their use for polymerization are also subjects of the present invention. I (R1, R2 = Me, R3, R4 = Et, R5-8 = H, X = PhCHMe) was manufactured by adding 13.9 g 3,3-diethyl-5,5-dimethylmorpholin-2-one N-oxyl to THF containing LiAlH4 at 0-10° and heating 5 h at reflux.

IT 332380-44-6P, 3,3,5,5-Tetramethyl-4-(1-phenylethoxy)morpholin-2-one

(initiator model compound precursor; open-chain hindered alkoxyamines and their corresponding nitroxides for controlled low-temperature radical polymerization)

RN 332380-44-6 HCAPLUS

CN 2-Morpholinone, 3,3,5,5-tetramethyl-4-(1-phenylethoxy)- (CA INDEX NAME)



IC ICM C08F004-00

ICS C07C239-20; C07D265-32; C07D265-34

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 23, 25

ST open chain hindered **alkoxyamine initiator** unsatd monomer radical polymn; ethylhydroxydimethylethyl

phenylethoxyaminobutanol manuf initiator unsatd monomer radical polymn

IT 332380-44-6P, 3,3,5,5-Tetramethyl-4-(1-phenylethoxy)morpholin-2-one

(initiator model compound precursor; open-chain hindered alkoxyamines and their corresponding nitroxides for controlled low-temperature radical polymerization)

IT 213924-52-8P, Sodium 2-(2-hydroxy-1,1-dimethylethylamino)-2-phenylpropionate **264279-70-1P**, 3,3-Diethyl-5,5-dimethyl-4-(1-phenylethoxy)morpholin-2-one **597555-36-7P**, 3,3-Diisopropyl-5,5-dimethyl-4-(1-phenylethoxy)morpholin-2-one **597555-40-3P**, 3-Pentyl-3,5,5-trimethyl-4-(1-phenylethoxy)morpholin-2-one **597555-44-7P**, 2,2-Dimethyl-1-(1-phenylethoxy)-1-aza-4-oxaspiro[5.5]undecan-5-one **597555-45-8P**, 2,2-Dimethyl-1-(1-phenylethoxy)-1-aza-4-oxaspiro[5.6]dodecan-5-one **597555-47-0P**, 3-Phenyl-3,5,5-trimethyl-4-(1-phenylethoxy)morpholin-2-one **597555-49-2P**, 5,5-Dimethyl-3-ethyl-3-phenyl-4-(1-phenylethoxy)morpholin-2-one **597555-52-7P**, 3-(4-Chlorophenyl)-3,5,5-trimethyl-4-(1-phenylethoxy)morpholin-2-one

(precursor; open-chain hindered alkoxyamines and their corresponding nitroxides for controlled low-temperature radical polymerization)

REFERENCE COUNT:

4

THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2003:434535 HCAPLUS Full-text
 DOCUMENT NUMBER: 139:22821
 TITLE: Process for the synthesis of hindered amine ethers
 from secondary amino oxides
 INVENTOR(S): Frey, Markus; Rast, Valerie
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
 SOURCE: PCT Int. Appl., 56 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003045919	A2	20030605	WO 2002-EP12957	20021119
WO 2003045919	A3	20040429		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG CA 2464107 A1 20030605 CA 2002-2464107 20021119 AU 2002352057 A1 20030610 AU 2002-352057 20021119 EP 1463717 A2 20041006 EP 2002-787731 20021119 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK BR 2002014429 A 20041103 BR 2002-14429 20021119 CN 1592740 A 20050309 CN 2002-823421 20021119 JP 2005516905 T 20050609 JP 2003-547371 20021119 MX 2004PA04694 A 20040819 MX 2004-PA4694 20040518 US 2005104042 A1 20050519 US 2004-496773 20040524 PRIORITY APPLN. INFO.: EP 2001-811143 A 20011126 WO 2002-EP12957 W 20021119				

OTHER SOURCE(S): MARPAT 139:22821

ED Entered STN: 06 Jun 2003

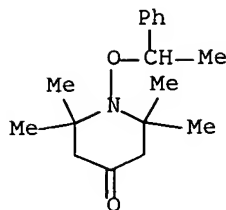
AB Amine ethers of sterically hindered amines are obtained in good yield from the
 corresponding N-oxyl hindered amine precursor by reaction with a hydrocarbon
 in the presence of an organic hydroperoxide and an iodide. The products of
 present process find utility as polymerization regulators and/or light
 stabilizers for organic material. Thus, adding tert-Bu hydroperoxide (I; 70%
 aqueous solution) 6.2 to a stirred mixture of 2,2,6,6-tetramethylpiperidine-N-
 oxide (TEMPO) 5, ethylbenzene 34 and tetrabutylammonium iodide 0.12 g within
 30 min, heating at 60° for 25 min until all of the TEMPO has reacted, cooling
 to 25°, stirring with a 10% aqueous solution of Na2SO3 until the disappearance
 of excess I, separating the aqueous phase, washing and drying over MgSO4 gave
 1-(1-phenylethoxy)-2,2,6,6-tetramethylpiperidine.

IT 122586-81-6P

(process for synthesis of hindered amine ethers from secondary
amino oxides)

RN 122586-81-6 HCAPLUS

CN 4-Piperidinone, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX
NAME)



IC ICM C07D211-94
 ICS C07D401-14; C07D493-10; C07C239-20; C09K015-20; C08K005-3435;
 C08K005-3492; C08F002-38
 CC 37-2 (Plastics Manufacture and Processing)
 IT Oxidation **catalysts**
 (onium salts; process for synthesis of hindered amine ethers from
 secondary amino oxides)
 IT 117174-66-0P **122586-81-6P** 122587-12-6P
154554-67-3P, 1-(1-Phenylethoxy)-2,2,6,6-tetramethylpiperidine
243972-05-6P **244021-01-0P** 264224-73-9P
335201-37-1P 378245-16-0P 378245-17-1P
378245-30-8P **434898-80-3P** **437744-23-5P**
 437748-41-9P 538343-67-8P 538343-74-7P 538343-76-9P
 538343-80-5P
 (process for synthesis of hindered amine ethers from secondary
 amino oxides)

L68 ANSWER 14 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:397228 HCAPLUS Full-text
 DOCUMENT NUMBER: 139:117736
 TITLE: Synthesis of reactive poly(vinyl oxazolones) via
 nitroxide-mediated "living" free radical
 polymerization
 AUTHOR(S): Tully, David C.; Roberts, Michael J.;
 Geierstanger, Bernhard H.; Grubbs, Robert B.
 CORPORATE SOURCE: Genomics Institute, Novartis Research Foundation,
 San Diego, CA, 92121, USA
 SOURCE: Macromolecules (2003), 36(12), 4302-4308
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 25 May 2003

AB Low-polydispersity poly(vinyl oxazolone) has been prepared using nitroxide-
 mediated living free radical polymerization Bulk homopolymn. of 2-vinyl-4,4-
 dimethyl-5-oxazolone (VDMO) in the presence of the α -hydrido **alkoxyamine**
initiator, N-(1,1-dimethylethyl)- α -(1-methylethyl)-N-(1-phenylethoxy)-
 benzenemethanamine, and the corresponding nitroxide proceeds to high
 conversion with polydispersities of less than 1.10. Accurate mol. weight
 control and low polydispersities (.apprx.1.04-1.10) were obtained on
 statistical copolymn. with styrene. Well-defined reactive statistical
 copolymers with polydispersities ranging from 1.05 to 1.30 were also prepared
 by copolymn. of oxazolone-functional monomers with acrylates, acrylamides, and
 N-vinylamides. Reactive block copolymers were prepared by polymerization of
 VDMO from poly(Bu acrylate) starting blocks as well as by polymerization of
 styrene from poly(VDMO) starting blocks. New polymers were prepared from

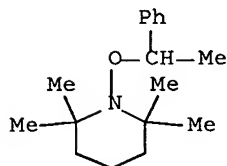
VDMO-containing polymers and copolymers by nucleophilic ring-opening of the pendant oxazolone rings with amines.

IT 154554-67-3

(synthesis of reactive poly(vinyl oxazolones) via nitroxide-mediated "living" free radical polymerization)

RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



CC 35-4 (Chemistry of Synthetic High **Polymers**)

IT 2564-83-2, TEMPO 61015-94-9 154554-67-3 227000-59-1

(synthesis of reactive poly(vinyl oxazolones) via nitroxide-mediated "living" free radical polymerization)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 15 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:282982 HCAPLUS Full-text

DOCUMENT NUMBER: 139:22546

TITLE: New Seven- and Eight-Membered Cyclic Alkoxyamines for the Living Free Radical Polymerization

AUTHOR(S): Schulte, Tobias; Studer, Armido

CORPORATE SOURCE: Fachbereich Chemie der Universitaet Marburg, Marburg, D-35032, Germany

SOURCE: Macromolecules (2003), 36(9), 3078-3084

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 13 Apr 2003

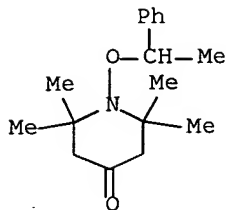
AB A straightforward synthesis of new seven- and eight-membered cyclic alkoxyamines from the corresponding lower homologous keto-alkoxyamines via ring-enlargement using TMS-diazomethane is described. The use of these ring-enlarged cyclic alkoxyamines as regulators/ **initiators** for the radical polymerization of styrene and Bu acrylate is presented. Efficient controlled and living styrene polymerization (mol. weight of up to 40 000) can be obtained using the seven- and eight-membered **alkoxyamine initiators**. The influence of the ring-enlargement on the quality of the polymerization process (polymerization time, livingness, PDI) is discussed. The rate constant of the C-O bond cleavage of these new alkoxyamines was measured. In addition, the thermal decomposition of the alkoxyamines was studied. Furthermore, EPR data of the corresponding new nitroxides are presented.

IT 122586-81-6P

(new seven- and eight-membered cyclic alkoxyamines **catalysts** for living free radical polymerization)

RN 122586-81-6 HCAPLUS

CN 4-Piperidinone, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



- CC 35-3 (Chemistry of Synthetic High **Polymers**)
- ST prepn seven eight membered cyclic alkoxyamine radical polymn
catalyst; alkoxyamine living free radical polymn
catalyst prepn
- IT **Activation energy**
 (homolysis; new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT **Polymerization**
Polymerization catalysts
 (living, radical; new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT **Hyperfine coupling**
Reduction
Ring enlargement
Ring enlargement catalysts
 (new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT **Decomposition kinetics**
 (of **catalysts**; new seven- and eight-membered cyclic
 alkoxyamines **catalysts** for living free radical polymerization)
- IT **122586-81-6P** 538376-93-1P 538376-94-2P 538376-95-3P
 (new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT **132416-36-5P** 538376-96-4P 538376-97-5P 538376-98-6P
 (new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT 2226-96-2P 2896-70-0P 538376-99-7P 538377-00-3P 538377-01-4P
 538377-02-5P 538377-03-6P 538377-04-7P
 (new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT 9003-49-0P, Poly(butyl acrylate) 9003-53-6P, Polystyrene
 (new seven- and eight-membered cyclic alkoxyamines
catalysts for living free radical polymerization)
- IT 585-71-7, (1-Bromoethyl)benzene
 (preparation of **initiator**; new seven- and eight-membered
 cyclic alkoxyamines **catalysts** for living free radical
 polymerization)
- IT 109-63-7, Boron trifluoride etherate
 (ring enlargement; new seven- and eight-membered cyclic
 alkoxyamines **catalysts** for living free radical polymerization)
- IT 18107-18-1, (Trimethylsilyl)diazomethane
 (ring enlargement; new seven- and eight-membered cyclic
 alkoxyamines **catalysts** for living free radical polymerization)
- REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 16 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:148870 HCAPLUS Full-text

DOCUMENT NUMBER: 139:22531

TITLE: A convenient synthesis of functionalized alkoxyamines as initiators for living free radical polymerization

AUTHOR(S): Sugimoto, Naoya; Narumi, Atsushi; Satoh, Toshifumi; Kaga, Harumi; Kakuchi, Toyoji

CORPORATE SOURCE: Graduate School of Engineering, Division of Molecular Chemistry, Hokkaido University, Sapporo, 060-8628, Japan

SOURCE: Polymer Bulletin (Berlin, Germany) (2003), 49(5), 337-340

CODEN: POBUDR; ISSN: 0170-0839

PUBLISHER: Springer-Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 27 Feb 2003

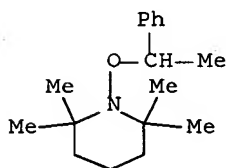
AB 2,2,6,6-Tetramethylpiperidine-1-oxyl (TEMPO) was reacted with ethylbenzene (1a), 1-bromo-4-ethylbenzene (1b), and 4-ethylphenyl acetate (1c), resp., using tert-BuOOWCo(OAc)·4H₂O in acetonitrile at room temperature. The reactions produced the resp. TEMPO-adducts (2a, 2b, and 2c) in the yields of 37, 44, and 45%, which were based on TEMPO. Similarly, TEMPO was reacted with 4-ethylphenyl 2,3,6,2',3',4',6'-hepta-O-acetyl-β-D-cellobioside (1d) to afford the glycoconjugated TEMPO-adduct (2d) in 45% yield, which was based on 1d. These results indicated that the reaction has the potential to become an easy and also safe strategy, which provided various functionalized alkoxyamines.

IT 154554-67-3P

(synthesis of functionalized alkoxyamines as initiators for living free radical polymerization)

RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)

CC 35-3 (Chemistry of Synthetic High **Polymers**)ST **alkoxyamine initiator** living radical polymn

IT 154554-67-3P 178625-97-3P 213699-59-3P

538373-53-4P

(synthesis of functionalized alkoxyamines as initiators for living free radical polymerization)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 17 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:140776 HCAPLUS Full-text

DOCUMENT NUMBER: 139:36837

TITLE: Nitroxide-mediated radical polymerization of

styrene in miniemulsion: model studies of alkoxyamine-initiated systems

AUTHOR(S): Ma, John W.; Smith, Jodi A.; McAuley, Kim B.; Cunningham, Michael F.; Keoshkerian, Barkev; Georges, Michael K.

CORPORATE SOURCE: Department of Chemical Engineering, Queen's University, Kingston, ON, K7L 3N6, Can.

SOURCE: Chemical Engineering Science (2003), 58(7), 1163-1176
CODEN: CESCAC; ISSN: 0009-2509

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

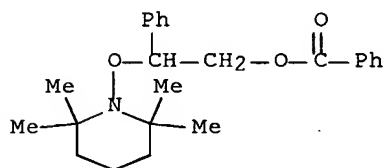
ED Entered STN: 25 Feb 2003

AB A math. model was developed to describe the behavior of the nitroxide-mediated miniemulsion polymerization (NMMP) of styrene initiated by **alkoxyamine initiators**. The model includes mechanisms describing reactions in the aqueous and organic phases, particle nucleation, the entry and exit of oligomeric radicals, and the partitioning of nitroxide and styrene between the aqueous and organic phases. The influence of nitroxide partitioning on the polymerization kinetics was examined by modeling systems initiated by the alkoxyamines BST and hydroxyl-BST; BST and hydroxyl-BST are benzoylstyryl radicals terminated by the nitroxides TEMPO and 4-hydroxyl-TEMPO, resp. Predicted monomer conversions, number average mol. wts. and polydispersities were in agreement with exptl. measured values. Simulations and math. anal. showed that the rate of styrene NMMP is not strongly influenced by the partitioning properties of TEMPO and 4-hydroxyl-TEMPO because of the complex interaction between reaction equilibrium, phase equilibrium, termination and thermal initiation. However, in the absence of styrene thermal initiation, nitroxide partitioning had a significant influence on the polymerization kinetics. The model was also used to make quant. ests. of: the population of active and dormant polymer radicals derived from both **alkoxyamine initiators** and thermal initiation; the population of dead polymer chains; and the number mol. weight distributions of living and dead polymer chains.

IT **81913-53-3**
(polymerization catalyst; math. modeling of nitroxide-mediated radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)

RN 81913-53-3 HCAPLUS

CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, 1-benzoate (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

ST math modeling living radical polymn styrene; simulation nitroxide mediated polymn styrene miniemulsion; **alkoxyamine initiator** living radical polymn styrene miniemulsion

IT Polymerization kinetics
(living, radical; math. modeling of nitroxide-mediated living

radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)

- IT Polymerization
(living, radical; math. modeling of nitroxide-mediated radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)
- IT Simulation and Modeling
(math. modeling of nitroxide-mediated living radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)
- IT Molecular weight
Polydispersity
(math. modeling of nitroxide-mediated radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)
- IT 100-42-5, Styrene, reactions
(math. modeling of nitroxide-mediated radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)
- IT 9003-53-6P, Polystyrene
(math. modeling of nitroxide-mediated radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)
- IT **81913-53-3 470689-10-2**
(polymerization catalyst; math. modeling of nitroxide-mediated radical polymerization of styrene in miniemulsion initiated by **alkoxyamine initiators**)

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 18 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:928481 HCAPLUS Full-text

DOCUMENT NUMBER: 138:137679

TITLE: n-Butyl acrylate polymerization mediated by a PROXYL nitroxide

AUTHOR(S): Cameron, Neil R.; Reid, Alistair J.

CORPORATE SOURCE: Department of Chemistry, University of Durham, Durham, DH1 3LE, UK

SOURCE: Macromolecules (2002), 35(27), 9890-9895

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Dec 2002

AB N-Bu acrylate has been polymerized in the presence of an **alkoxyamine initiator** derived from the PROXYL nitroxide 2,2',5-trimethyl-5'-phenylpyrrolidiny-1-oxyl. It was found that polymns. were rapid, reaching almost complete conversion within 2 h; in contrast, no conversion was observed when TEMPO was used as the mediator. The addition of a small amount of free nitroxide resulted in slower polymns. although an induction period, the length of which varied with excess nitroxide concentration, was observed. Size exclusion chromatog. indicated that polymerization control was poor; Mn initially increased rapidly and then much more slowly, and polydispersities were found to be broad and to increase with conversion. Quant. ¹³C NMR spectroscopy revealed the resulting poly(Bu acrylate) to be branched. Despite the poor control, the PBA was able to act as a macroinitiator for the polymerization of styrene, yielding a block copolymer with a growth in Mn and a reduction of polydispersity with conversion. It is suggested that the polymerization of Bu

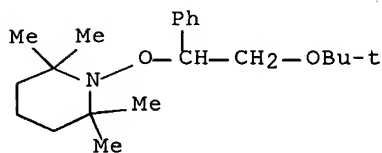
acrylate in the presence of the substituted PROXYL derivative is living but not controlled.

IT 185055-65-6

(Bu acrylate polymerization mediated by PROXYL nitroxide)

RN 185055-65-6 HCAPLUS

CN Piperidine, 1-[2-(1,1-dimethylethoxy)-1-phenylethoxy]-2,2,6,6-tetramethyl- (CA INDEX NAME)



CC 35-4 (Chemistry of Synthetic High **Polymers**)

IT 62539-49-5 185055-65-6 328311-61-1

(Bu acrylate polymerization mediated by PROXYL nitroxide)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 19 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:886070 HCAPLUS Full-text

DOCUMENT NUMBER: 136:20022

TITLE: Process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper **catalysts**.

INVENTOR(S): Hafner, Andreas; Kirner, Hans Juerg; Schwarzenbach, Franz; Van Der Schaaf, Paul Adriaan; Nesvadba, Peter

PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.

SOURCE: PCT Int. Appl., 84 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001092228	A2	20011206	WO 2001-EP5668	20010517
WO 2001092228	A3	20020516		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
TW 572896	B	20040121	TW 2001-90110396	20010501
CA 2407866	A1	20011206	CA 2001-2407866	20010517
EP 1284966	A2	20030226	EP 2001-945152	20010517
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			

10/519,030

JP 2003535080	T	20031125	JP 2002-500843	20010517
RU 2273634	C2	20060410	RU 2002-133210	20010517
US 2003171461	A1	20030911	US 2002-296107	20021122
US 6900328	B2	20050531		
US 2005043552	A1	20050224	US 2004-919776	20040817
PRIORITY APPLN. INFO.:			EP 2000-810461	A 20000526
			WO 2001-EP5668	W 20010517
			US 2002-296107	A1 20021122

OTHER SOURCE(S): CASREACT 136:20022; MARPAT 136:20022

ED Entered STN: 07 Dec 2001

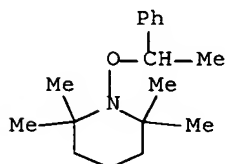
AB [G1G2T2CN(T1)O]aE1 [a = 1, 2; when a = 1, E = alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, (unsatd.) aliphatic bicyclic or tricyclic hydrocarbyl, aralkyl, etc.; when a = 2, E = alkylene, cycloalkylene, cycloalkenylene, alkenylene, phenylalkyl, etc.; T1 = (substituted) tertiary alkyl, Ph, cycloalkyl, heterocyclyl, etc.; T2 = H, halo, NO2, cyano, organic radical; T1T2 = organic linking group; G1, G2 = H, halo, NO2, cyano, aminocarbonyl, etc.], were prepared by reaction of G1G2T2CN(T1)O· with EH in the presence of an organic hydroperoxide and catalytic Cu or Cu compds. Thus, 1-oxyl-2,2,6,6-tetramethyl-4-propoxypiperidine, ethylbenzene, tert-Bu hydroperoxide in decane, and CuCl2 in EtOH were stirred at 60° for 60 min. to give 97% 1-(1-phenethyloxy)-2,2,6,6-tetramethyl-4-propoxypiperidine.

IT 154554-67-3P

(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper catalysts)

RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



IC ICM C07D211-94

ICS C07D405-12; C07D401-12; C08K005-3435; C08F004-00; C07D217-26; C07D209-44; C07D241-08

CC 27-16 (Heterocyclic Compounds (One Hetero Atom))

Section cross-reference(s): 28, 35

ST amine ether prepn; oxylamine hydrocarbon coupling reaction hydroperoxide copper catalyst; piperidinoxyl hydrocarbon coupling reaction hydroperoxide copper catalyst; hydrocarbyloxyamine prepn heat light stabilizer; antioxidant hydrocarbyloxyamine prepn; polymn regulator hydrocarbyloxyamine prepn

IT Coupling reaction

(homolytic; process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper catalysts)

IT Phase transfer catalysts

(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper

- catalysts)**
- IT 1643-19-2, Tetrabutylammonium bromide 7440-50-8, Copper, uses 7440-50-8D, Copper, compds. 7447-39-4, Cupric chloride, uses 7758-89-6, Cuprous chloride 7787-70-4, Cuprous bromide 35675-80-0, Trioctyl-methyl ammonium bromide
(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper
catalysts)
- IT 7803-49-8DP, Hydroxylamine, hydrocarbyloxyamines **154554-67-3P**
243972-01-2P 335201-37-1P 378245-15-9P
378245-16-0P 378245-17-1P 378245-18-2P 378245-19-3P
378245-20-6P **378245-21-7P** 378245-22-8P 378245-23-9P
378245-24-0P **378245-25-1P 378245-26-2P**
378245-27-3P 378245-28-4P 378245-29-5P
378245-30-8P 378245-31-9P 378245-32-0P
378245-33-1P 378245-34-2P
(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper
catalysts)
- IT 100-41-4, Ethylbenzene, reactions 101-41-7, Methyl phenylacetate 103-45-7, 2-Phenethyl acetate 110-82-7, Cyclohexane, reactions 110-83-8, Cyclohexene, reactions 110-87-2, 3,4-Dihydro-2H-pyran 140-29-4, Benzyl cyanide 536-75-4, 4-Ethylpyridine 1746-13-0, Allyl phenyl ether 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl 2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl 2930-02-1 3282-30-2, Pivaloyl chloride 14691-89-5, 4-(Acetylamino)-2,2,6,6-tetramethylpiperidin-1-oxyl 18554-09-1 61746-17-6 71809-12-6 104134-81-8 154186-10-4 194147-18-7 264279-93-8
(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper
catalysts)
- IT 75-98-9P, 2,2-Dimethylpropionic acid 182190-87-0P 378245-35-3P 378245-36-4P 378245-37-5P
(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper
catalysts)
- IT 75-91-2, tert-Butyl hydroperoxide 79-21-0, Peracetic acid
(process for the synthesis of amine ethers from N-oxylamines and hydrocarbons in the presence of hydroperoxides and copper
catalysts)

L68 ANSWER 20 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:868459 HCAPLUS Full-text

DOCUMENT NUMBER: 136:6539

TITLE: Hydroxylamine esters as polymerization
initiators

INVENTOR(S): Roth, Michael; Pfaendner, Rudolf; Nesvadba, Peter;
Zink, Marie-Odile

PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.

SOURCE: PCT Int. Appl., 114 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001090113	A1	20011129	WO 2001-EP5447	20010514
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,				

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA 2406255	A1	20011129	CA 2001-2406255	20010514
BR 2001010854	A	20030211	BR 2001-10854	20010514
EP 1282630	A1	20030212	EP 2001-931694	20010514
EP 1282630	B1	20060510		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003534347	T	20031118	JP 2001-586300	20010514
EP 1655303	A2	20060510	EP 2006-100223	20010514
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
AT 325801	T	20060615	AT 2001-931694	20010514
AU 784955	B2	20060810	AU 2001-58398	20010514
PT 1282630	T	20060929	PT 2001-931694	20010514
ES 2262647	T3	20061201	ES 2001-931694	20010514
RU 2298563	C2	20070510	RU 2002-133442	20010514
TW 249539	B	20060221	TW 2001-90111569	20010515
KR 783605	B1	20071207	KR 2002-714001	20021018
US 2003216494	A1	20031120	US 2002-275495	20021105
US 7030196	B2	20060418		
IN 2002CN01865	A	20050211	IN 2002-CN1865	20021113
NO 2002005532	A	20030106	NO 2002-5532	20021118
MX 2002PA11344	A	20030425	MX 2002-PA11344	20021118
ZA 2002009397	A	20031016	ZA 2002-9397	20021119
US 2006128903	A1	20060615	US 2006-339214	20060125
IN 2007CN01321	A	20070831	IN 2007-CN1321	20070330
KR 2007086650	A	20070827	KR 2007-714491	20070625
PRIORITY APPLN. INFO.:			EP 2000-810443	A 20000519
			EP 2001-931694	A3 20010514
			WO 2001-EP5447	W 20010514
			KR 2002-714001	A3 20021018
			US 2002-275495	A1 20021105
			IN 2002-CN1865	A3 20021113

OTHER SOURCE(S): MARPAT 136:6539

ED Entered STN: 30 Nov 2001

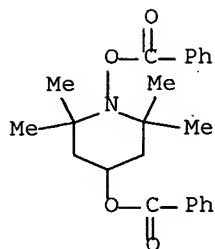
AB The invention relates to novel cyclic and open-chain hydroxylamine esters and polymerizable compns. comprising these hydroxylamine esters and an ethylenically unsatd. monomer or oligomer. The invention also relates to use as polymerization **initiators** and to the use of known hydroxylamine esters and the novel hydroxylamine esters for the controlled degradation of polypropylene and for achieving a controlled increase in the mol. weight of polyethylene.

IT 7031-92-7P

(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

RN 7031-92-7 HCAPLUS

CN 4-Piperidinol, 1-(benzoyloxy)-2,2,6,6-tetramethyl-, benzoate (ester) (8CI, 9CI) (CA INDEX NAME)



- IC ICM C07F009-59
ICS C07D295-24; C07D211-94; C07D241-08; C08F004-00; C08F008-50
CC 35-3 (Chemistry of Synthetic High **Polymers**)
Section cross-reference(s): 27, 67
ST hydroxylamine ester manuf polymn **catalyst**; radical polymn **initiator** hydroxylamine ester manuf
IT Molecular weight
Polymer degradation
Polymer degradation **catalysts**
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)
IT EPDM rubber
Linear low density polyethylenes
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)
IT Polymer blends
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)
IT Polymerization **catalysts**
(radical; hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)
IT 9002-88-4, Polyethylene
(Lupolen 1812E, Hostalen GB 7250; hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)
IT 376587-77-8P
(ester of acetic acid; hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)
IT **7031-92-7P** 89108-37-2P 99365-17-0P 113682-53-4P
122809-58-9P 123978-94-9P 130048-66-7P 271242-59-2P
376587-78-9P 376587-79-0P 376587-80-3P 376587-81-4P
376587-82-5P 376587-83-6P 376587-84-7P 376587-85-8P
376587-86-9P 376587-87-0P 376587-88-1P 376587-89-2P
376587-90-5P 376587-91-6P 376587-92-7P 376587-93-8P
376587-94-9P 376587-95-0P **376587-96-1P** 376587-97-2P
376587-98-3P 376587-99-4P 376588-01-1P 376588-02-2P
376588-03-3P 376588-04-4P 376588-05-5P 376588-06-6P
376588-07-7P 376588-08-8P 376588-09-9P 376588-10-2P
376588-11-3P 376588-13-5P 376588-15-7P 376588-17-9P
376588-19-1P 376588-20-4P 376588-21-5P 376588-24-8P
376588-27-1P 376588-29-3P 376588-30-6P 376588-31-7P
376588-32-8P 376588-33-9P 376588-34-0P 376588-36-2P
376588-37-3P 376588-38-4P **376588-39-5P** 376588-40-8P
376588-41-9P 376588-42-0P

(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

IT 376588-00-0P
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

IT 9003-49-0P, Butyl acrylate homopolymer
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

IT 199101-44-5P 376588-35-1P
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

IT 74-85-1D, Ethylene, polymers with α -olefins 9003-07-0, Polypropylene 25085-53-4, Profax 6501
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

IT 79-21-0, Peracetic acid 79-37-8, Oxalyl chloride 98-88-4, Benzoyl chloride 102-92-1, Cinnamoyl chloride 103-71-9, Phenyl isocyanate, reactions 108-24-7, Acetic anhydride 109-90-0, Ethyl isocyanate 111-50-2, Adipoyl chloride 112-76-5, Stearoyl chloride 134-03-2, Sodium ascorbate 407-25-0, Trifluoroacetic anhydride 938-18-1, 2,4,6-Trimethylbenzoyl chloride 1310-73-2, Sodium hydroxide, reactions 1499-21-4, Diphenylphosphinic chloride 2094-72-6, 1-Adamantylcarboxylic acid chloride 2516-91-8 2516-92-9 3282-30-2, Pivaloyl chloride 3637-10-3, 1,4-Dihydroxy-2,2,6,6-tetramethylpiperidine 4972-13-8 6599-87-7 7803-49-8, Hydroxylamine, reactions 14691-89-5 16256-42-1, 2,2,5,5-Tetramethyl-4-oxoimidazolidine 22977-67-9 24424-99-5 51210-48-1 61682-93-7 61745-37-7 61746-17-6 61964-43-0 71981-32-3 80037-90-7 98254-32-1 150981-00-3 151419-17-9 154186-10-4 195300-91-5, Chimassorb 2020 244020-99-3 244021-06-5 258289-25-7 264279-93-8 264280-22-0 376588-12-4 376588-14-6 376588-16-8
(hydroxylamine esters as polymerization **initiators** and controlling degradation and mol. weight of polymers)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 21 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2001:718062 HCAPLUS Full-text
 DOCUMENT NUMBER: 135:273360
 TITLE: Vinyl group-containing alkoxyamines, manufacture of them and radical polymerization initiators, and graft polymers manufactured using the initiators
 INVENTOR(S): Hayashi, Masaki; Nakamura, Tomoyuki; Ujigawa, Norihisa
 PATENT ASSIGNEE(S): NOF Corporation, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2001270859	A	20011002	JP 2000-125936	20000426
PRIORITY APPLN. INFO.:			JP 2000-8340	A 20000117.

OTHER SOURCE(S): MARPAT 135:273360

ED Entered STN: 02 Oct 2001
 AB R1CO2CH2CR8R9ON(CR2R3R4)CR5R6R7 [R1 = monovalent organic group having radically polymerizable vinyl group; R2-R7 = C1-4 linear or branched alkyl; R2R7 may form (un)substituted C4-12 ring; R8 = H, Me; R9 = Ph, MeC6H4, cyano, C1-4 alkoxy carbonyl, C1-4 alkylcarbonyloxy] are manufactured by decomposition of (R1CO2)2 (R1 = same as above) in the presence of ·ON(CR2R3R4)CR5R6R7 (R2-R7 = same as above) and H2C:CR8R9 (R8, R9 = same as above). Thus, styrene was reacted with 2,2,6,6-tetramethylpiperidine-1-oxyl and cinnamoyl peroxide to give PhCH:CHCO2CH2CHPhOZ (Z = 2,2,6,6-tetramethylpiperidino), which was polymerized with (chloromethyl)styrene to give alkoxyamine-modified poly[(chloromethyl)styrene] with Mn 48,000. Styrene was polymerized in the presence of the initiator to give (chloromethyl)styrene-styrene graft copolymer.

IT **362660-50-2P**

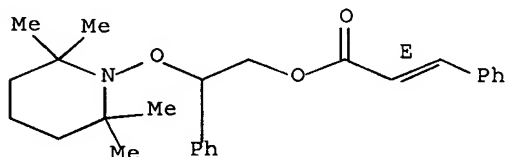
(manufacture of vinyl group-containing alkoxyamines for manufacture of polymerization

initiators and graft polymers)

RN 362660-50-2 HCAPLUS

CN 2-Propenoic acid, 3-phenyl-, 2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl ester, (2E)- (CA INDEX NAME)

Double bond geometry as shown.



IC ICM C07C239-20

ICS C07D211-94; C08F004-00; C08F216-14; C08F218-00; C08F220-36; C08F291-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 27

IT **362660-50-2P 362660-51-3P 362660-52-4P**

362660-53-5P 362660-54-6P 362660-55-7P

362660-56-8P 362660-57-9P 362660-58-0P

(manufacture of vinyl group-containing alkoxyamines for manufacture of polymerization

initiators and graft polymers)

IT **362660-59-1P 362660-60-4P 362660-61-5P**

(polymerization initiator; manufacture of vinyl group-containing alkoxyamines for

manufacture of polymerization initiators and graft polymers)

L68 ANSWER 22 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:662112 HCAPLUS Full-text

DOCUMENT NUMBER: 135:372063

TITLE: Synthesis of poly(methylene-b-styrene) by sequential living polymerization

AUTHOR(S): Zhou, Xian-Zhi; Shea, Kenneth J.

CORPORATE SOURCE: Department of Chemistry, University of California, Irvine, CA, 92696-2025, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(2),

411-412

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 11 Sep 2001

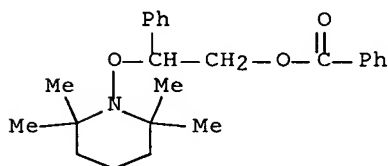
AB We have recently developed a synthesis of telechelic polymethylene. Organoboranes serve as the **initiator** and dimethylsulfoxonium methylide (1) functions as the monomer. The carbon chain is built up one carbon at a time by repetitive homologation (polyhomologation) of alkyl substituents. The living nature of the polyhomologation reaction permits control of the mol. weight as well as the functionality at either end of the polymer chain. We are utilizing polyhomologation chemical to develop general methods for the synthesis of well defined copolymers of polymethylene and the major commodity polyolefins. AB block copolymer of poly(methylene-b-styrene) was chosen as the targets of this research. The block copolymers are useful compatibilizers in PE/PS polymer blends.

IT **81913-53-3P**

(polymerization **initiator** synthesis; synthesis of poly(methylene-b-styrene) by sequential living polymerization)

RN 81913-53-3 HCAPLUS

CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, 1-benzoate (CA INDEX NAME)

CC 35-4 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): 37

IT 94-36-0, Benzoyl peroxide, reactions 100-42-5, Styrene, reactions 2564-83-2, TEMPO

(polymerization **initiator** synthesis; synthesis of poly(methylene-b-styrene) by sequential living polymerization)

IT **81913-53-3P**

(polymerization **initiator** synthesis; synthesis of poly(methylene-b-styrene) by sequential living polymerization)

IT **161776-41-6P**

(polymerization **initiator**; synthesis of poly(methylene-b-styrene) by sequential living polymerization)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 23 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:582410 HCAPLUS Full-text

DOCUMENT NUMBER: 135:289127

TITLE: Nitroxide-Mediated Miniemulsion Acrylate Polymerization

AUTHOR(S): Keoshkerian, Barkev; Szkurhan, Andrea R.; Georges, Michael K.

CORPORATE SOURCE: Xerox Research Centre of Canada, Mississauga, ON,
L5K 2L1, Can.

SOURCE: Macromolecules (2001), 34(19), 6531-6532
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

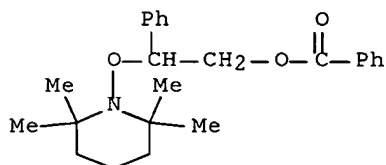
ED Entered STN: 12 Aug 2001

AB Bu acrylate can be polymerized by a stable free radical polymerization miniemulsion process at 135° using alkoxyamine terminated with TEMPO as initiator in the presence of a small amount of ascorbic acid. The conversion was 60-65%. Polydispersities were broader than when hydroxy-containing nitroxide was used, but the polymers were living as seen by the incremental increase in mol. weight with time.

IT **81913-53-3**
(miniemulsion polymerization of Bu acrylate in presence of)

RN 81913-53-3 HCAPLUS

CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, 1-benzoate (CA INDEX NAME)



CC 35-4 (Chemistry of Synthetic High **Polymers**)

IT Polymerization catalysts
(emulsion; miniemulsion polymerization of Bu acrylate in presence of TEMPO-terminated **alkoxyamine initiator**)

IT **81913-53-3**
(miniemulsion polymerization of Bu acrylate in presence of)

IT 9003-49-0P, Poly(butyl acrylate)
(miniemulsion polymerization of Bu acrylate in presence of TEMPO-terminated **alkoxyamine initiator**)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 24 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:165813 HCAPLUS Full-text

DOCUMENT NUMBER: 134:223147

TITLE: Functionalized **alkoxyamine initiators** for radical polymerization and their preparation

INVENTOR(S): Melchior, Martin; Hoecker, Hartwig; Keul, Helmut; Achten, Dirk

PATENT ASSIGNEE(S): Bayer A.-G., Germany

SOURCE: Ger. Offen., 13 pp.
CODEN: GWXXBX

DOCUMENT TYPE: Patent

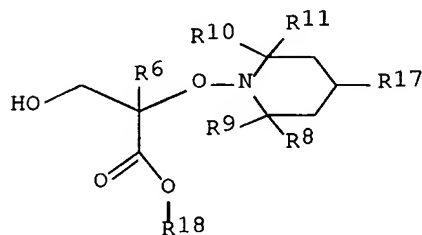
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19942615	A1	20010308	DE 1999-19942615	19990907
EP 1083169	A1	20010314	EP 2000-118124	20000828
EP 1083169	B1	20031029		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
EP 1083186	A1	20010314	EP 2000-118125	20000828
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
ES 2208197	T3	20040616	ES 2000-118124	20000828
US 6573346	B1	20030603	US 2000-652075	20000831
US 6632895	B1	20031014	US 2000-652203	20000831
CA 2317321	A1	20010307	CA 2000-2317321	20000901
CA 2317323	A1	20010307	CA 2000-2317323	20000901
JP 2001081117	A	20010327	JP 2000-271541	20000907
JP 2001106713	A	20010417	JP 2000-271549	20000907
US 2003208021	A1	20031106	US 2003-408625	20030407
US 6800708	B2	20041005		
PRIORITY APPLN. INFO.:			DE 1999-19942614	A 19990907
			DE 1999-19942615	A 19990907
			US 2000-652075	A3 20000831

OTHER SOURCE(S): MARPAT 134:223147
ED Entered STN: 09 Mar 2001
GI



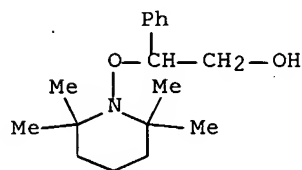
II

AB Alkoxyamines HOCHR₁CR₂R₃ONR₄R₅ (I) (more specifically, II are claimed as new compds.) [R₁-R₃ = H, C₁-20 (cyclo)alkyl, C₆-24 aryl, halogen, CN, amide or ester group; R₄, R₅ = C₁-24 organic group in which the N-linked C bears no H; R₄ + R₅ optionally contains ≥1 reactive functional group; R₆ = H, C₁-20 (cyclo)alkyl; R₈-R₁₁ = C₁-20 (cyclo)alkyl, C₆-24 aryl, (un)substituted C₇-C₂₄ aralkyl, ring portion; R₁₇ = H, reactive functional group; R₁₈ = C₁-20 (cyclo)alkyl] are prepared by reaction of R₁CH:CR₂R₃ with R₄R₅NO in the presence of H₂O₂ and a reducing agent, and are used as initiators of radical polymerization of vinyl monomers. Thus, addition of 50 mL 30% H₂O₂ dropwise over 5 h to a solution of 1 mol styrene and 0.1 mol 2,2,6,6-tetramethyl-1-piperidinyloxy in 300 mL MeOH at 40° containing 0.12 mol FeSO₄·7H₂O and 0.24 mol NaHCO₃ gave I [R₁ = R₂ = H, R₃ = Ph, R₄R₅ = CMe₂(CH₂)₃CMe₂] in 71% yield.

IT 161776-41-6P

(preparation of functionalized alkoxyamine initiators
for radical polymerization)

RN 161776-41-6 HCAPLUS
 CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]- (CA
 INDEX NAME)



IC ICM C07D211-94
 ICS C07D247-00; C07D273-00
 CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 27
 ST **alkoxyamine initiator** vinyl polymn
 IT Polymerization catalysts
 (preparation of functionalized **alkoxyamine initiators**
 for radical polymerization)
 IT 161776-41-6P 183959-05-9P 329180-72-5P
 329326-50-3P 329326-51-4P 329326-52-5P
 329326-53-6P
 (preparation of functionalized **alkoxyamine initiators**
 for radical polymerization)
 IT 329326-49-0P
 (preparation of functionalized **alkoxyamine initiators**
 for radical polymerization)
 IT 144-55-8, Sodium bicarbonate, uses
 (preparation of functionalized **alkoxyamine initiators**
 for radical polymerization)
 IT 80-62-6, Methyl methacrylate 96-33-3, Methyl acrylate 97-88-1,
 Butyl methacrylate 100-42-5, Styrene, reactions 101-43-9,
 Cyclohexyl methacrylate 103-11-7, 2-Ethylhexyl acrylate 108-31-6,
 Maleic anhydride, reactions 141-32-2, Butyl acrylate 2226-96-2,
 1-Piperidinyl-oxy, 4-hydroxy-2,2,6,6-tetramethyl- 2564-83-2, TEMPO
 7534-94-3, Isobornyl methacrylate 7722-84-1, Hydrogen peroxide,
 reactions 14691-89-5
 (preparation of functionalized **alkoxyamine initiators**
 for radical polymerization)
 IT 7720-78-7, Ferrous sulfate
 (reducing agent; preparation of functionalized **alkoxyamine**
initiators for radical polymerization)

L68 ANSWER 25 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2001:165812 HCAPLUS Full-text
 DOCUMENT NUMBER: 134:223167
 TITLE: Process for the manufacture of telechelic vinyl
 oligomers and polymers and their use
 INVENTOR(S): Melchior, Martin; Hoecker, Hartwig; Keul, Helmut;
 Achten, Dirk
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger. Offen., 12 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19942614	A1	20010308	DE 1999-19942614	19990907
EP 1083169	A1	20010314	EP 2000-118124	20000828
EP 1083169	B1	20031029		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
EP 1083186	A1	20010314	EP 2000-118125	20000828
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
ES 2208197	T3	20040616	ES 2000-118124	20000828
US 6573346	B1	20030603	US 2000-652075	20000831
US 6632895	B1	20031014	US 2000-652203	20000831
CA 2317321	A1	20010307	CA 2000-2317321	20000901
CA 2317323	A1	20010307	CA 2000-2317323	20000901
JP 2001081117	A	20010327	JP 2000-271541	20000907
JP 2001106713	A	20010417	JP 2000-271549	20000907
US 2003208021	A1	20031106	US 2003-408625	20030407
US 6800708	B2	20041005		
PRIORITY APPLN. INFO.:			DE 1999-19942614	A 19990907
			DE 1999-19942615	A 19990907
			US 2000-652075	A3 20000831

OTHER SOURCE(S): MARPAT 134:223167

ED Entered STN: 09 Mar 2001

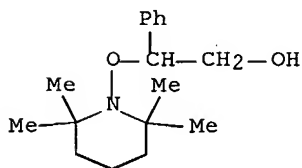
AB The telechelic entities, of number-average mol. weight 500-10,000 and with OH at one chain end and a group reactive toward NCO, OH, CO₂H, anhydride, or epoxy groups at the other, are prepared by polymerization of vinyl monomers in the presence of an **alkoxyamine initiator** HOCHR₁CR₂R₃ONR₄R₅ [R₁-R₃ = H, C₁-20 (cyclo)alkyl, C₆-24 aryl, halogen, CN, ester or amide group; R₄, R₅ = C₁-24 organic group (at least partly aliphatic)]. They can then react with unsatd. alcs., isocyanates, acids, anhydrides or epoxides to form, e.g., macromonomers with OH functionality at the far end of the chain. Thus, 40 equiv styrene was polymerized for 4 h at 130° in the presence of 1 equiv 1-(2-hydroxy-1-phenylethoxy)-2,2,6,6-tetramethyl-4-piperidinol to give a polystyrene with Mn 2190 and OH functionality >1.9 in 53% yield.

IT 161776-41-6

(initiator in manufacture of telechelic vinyl oligomers and polymers)

RN 161776-41-6 HCAPLUS

CN Benzeneethanol, β-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]- (CA INDEX NAME)



IC ICM C08F020-18

10/519,030

ICS C08F022-06; C08F012-08; C08F002-42
 CC 35-4 (Chemistry of Synthetic High **Polymers**)
 ST telechelic vinyl oligomer manuf; **alkoxyamine**
initiator vinyl monomer polymn
 IT Polymers, preparation
 (telechelic; manufacture of telechelic vinyl oligomers and polymers by
 use of **alkoxyamine initiator**)
 IT 161776-41-6 183959-05-9 329180-72-5
 (initiator in manufacture of telechelic vinyl oligomers and polymers)

L68 ANSWER 26 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2001:137295 HCAPLUS Full-text
 DOCUMENT NUMBER: 134:179364
 TITLE: Polymer blends with improved impact resistance
 INVENTOR(S): Chin, Hui; Botkin, James Harold; Fuso, Francesco;
 Wunderlich, Wiebke
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holdings Inc., Switz.
 SOURCE: PCT Int. Appl., 53 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001012721	A1	20010222	WO 2000-EP7528	20000803
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2376569	A1	20010222	CA 2000-2376569	20000803
EP 1203054	A1	20020508	EP 2000-949448	20000803
EP 1203054	B1	20041103		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
JP 2003507516	T	20030225	JP 2001-517611	20000803
AT 281496	T	20041115	AT 2000-949448	20000803
ES 2231225	T3	20050516	ES 2000-949448	20000803
US 6444754	B1	20020903	US 2000-634441	20000808
US 2003088027	A1	20030508	US 2002-192091	20020710
US 6765062	B2	20040720		
PRIORITY APPLN. INFO.:			US 1999-148499P	P 19990812
			WO 2000-EP7528	W 20000803
			US 2000-634441	A3 20000808

ED Entered STN: 25 Feb 2001
 AB Polymer blends, in particular polyphenylene ether-polyamide blends, are
 effectively compatibilized by incorporating certain oligomers, cooligomers,
 polymers and copolymers of narrow mol. weight distribution that are prepared
 under free radical polymerization conditions with glycidyl-functionalized
 nitroxyl **initiators**. The oligomers, cooligomers, polymers and copolymers
 contain ≥ 1 oxyamine group and ≥ 1 glycidyl-containing **initiator** group. Thus, a

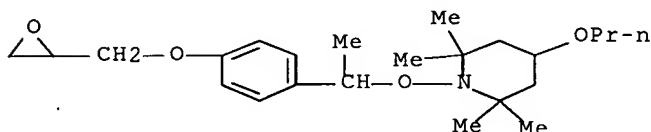
blend of HPP 820 37.5, nylon 66 37.5, Kraton FG 10, and polystyrene having glycidyl and oxyamine groups 15 parts was kneaded/extruded, and injection molded into samples having notched Izod impact strength 1.67, tensile strength 5.0 kg/mm², elongation 27%, and break energy 57. kg-mm; vs. 0.54, 6.2, 15, and 27, resp., for a 50:50 HPP 820:nylon 66 blend.

IT 243972-01-2P

(polymer blends with improved impact resistance)

RN 243972-01-2 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-[1-[4-(oxiranylmethoxy)phenyl]ethoxy]-4-propoxy- (9CI) (CA INDEX NAME)



IC ICM C08L071-12

ICS C08L077-00; C08L067-00; C08L025-04

CC 37-6 (Plastics Manufacture and Processing)

IT 243972-01-2P

(polymer blends with improved impact resistance)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 27 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:61904 HCAPLUS Full-text

DOCUMENT NUMBER: 134:252044

TITLE: Factors Influencing the C-O Bond Homolysis of Alkoxyamines: Effects of H-Bonding and Polar Substituents

AUTHOR(S): Marque, Sylvain; Fischer, Hanns; Baier, Elisabeth; Studer, Armido

CORPORATE SOURCE: Physikalisch-Chemisches Institut, Universitaet Zuerich, Zurich, CH-8057, Switz.

SOURCE: Journal of Organic Chemistry (2001), 66(4), 1146-1156

CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:252044

ED Entered STN: 26 Jan 2001

AB The synthesis of various new trialkylhydroxylamines is described. The rate constant of the C-O bond cleavage of these new alkoxyamines has been measured. For example, C-O bond homolysis rates in a series of para-substituted TEMPO-styryl compds. TEMPO-CH(CH₃)C₆H₅X (p-MeO, p-Me, p-H, p-Br, and p-MeO₂C) are presented. Furthermore, rate consts. for the C-O bond cleavage of α-heteroaryl-substituted secondary alkoxyamines are discussed. A correlation by which the rate constant for the C-O bond cleavage of TEMPO-derived alkoxyamines can be predicted from the C-H BDEs of the corresponding alkanes is presented. Solvent effects as well as the effect of camphorsulfonic acid on the rate of the C-O bond homolysis are discussed. Finally, EPR and kinetic evidence show that alkoxyamines derived from nitroxides which are capable of

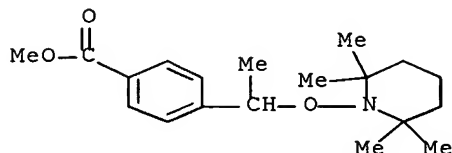
intramol. H-bonding undergo C-O bond cleavage faster than the corresponding non-H-bond-forming analogs.

IT 212132-39-3P

(effects of H-bonding and polar substituents on the C-O bond
homolysis kinetics of alkoxyamines)

RN 212132-39-3 HCAPLUS

CN Benzoic acid, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]-,
methyl ester (CA INDEX NAME)



CC 22-8 (Physical Organic Chemistry)

Section cross-reference(s): 35

IT 212132-39-3P 270901-39-8P 270901-51-4P

270901-52-5P 270901-53-6P 270901-54-7P 270901-56-9P

270901-82-1P 270901-83-2P 270901-86-5P 270901-97-8P

270901-98-9P 270902-02-8P 330938-04-0P 330938-05-1P

330938-06-2P 330938-07-3P 330938-08-4P 330938-09-5P

330938-10-8P 330938-11-9P 330938-14-2P

(effects of H-bonding and polar substituents on the C-O bond
homolysis kinetics of alkoxyamines)

REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L68 ANSWER 28 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:911209 HCAPLUS Full-text

DOCUMENT NUMBER: 134:72025

TITLE: Preparation of vinyl-containing alkoxyamines used
as polymerizable monomers of polymeric radical
initiators for manufacture of graft copolymers

INVENTOR(S): Hayashi, Masaki; Nakamura, Tomoyuki; Ujikawa,
Norihisa

PATENT ASSIGNEE(S): NOF Corporation, Japan

SOURCE: PCT Int. Appl., 69 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000078709	A1	20001228	WO 2000-JP3170	20000517
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF,				

BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

JP 2000095744	A	20000404	JP 1999-177422	19990623
JP 2001064308	A	20010313	JP 1999-242052	19990827
AU 2000046142	A	20010109	AU 2000-46142	20000517
EP 1188742	A1	20020320	EP 2000-927796	20000517
EP 1188742	B1	20041215		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, LT, LV, FI, RO

AT 284862	T	20050115	AT 2000-927796	20000517
US 6919481	B1	20050719	US 2001-959754	20000517

PRIORITY APPLN. INFO.: JP 1999-177422 A 19990623

JP 1999-242052 A 19990827

JP 1998-206146 A 19980722

WO 2000-JP3170 W 20000517

OTHER SOURCE(S): MARPAT 134:72025

ED Entered STN: 29 Dec 2000

AB The title alkoxyamine (I) represented by general formula:
 $R1COOCH2CH(C6H4CH:CH2)ONR3R4$, wherein R1=aryl or R20, R2=C1-12 linear or branched (cyclo)alkyl, R3, R4=C4-6 tertiary alkyl, or a C8-16 cyclic structure by bonding R3 and R4 together, is prepared by reacting a divinylbenzene with a nitroxide compound and an organic peroxide (II) at the decomposition temperature of II. Thus, heating the mixture of DVB-960 (mixture of m- and p-divinylbenzene) 50, 4-hydroxy-TEMPO 8.6 and diisopropyl peroxydicarbonate 11.6 g at 50° for 5 h gave an I, 0.62 g of which was mixed with 4.41 g Me methacrylate and 0.01 g tert-hexyl peroxy-pivalate and polymerized at 60° for 6 h to give a copolymer having graftable radical initiator sites.

IT 313975-54-1P

(preparation of vinyl-containing alkoxyamines used as polymerizable monomers

of polymeric radical initiators for manufacture of graft copolymers)

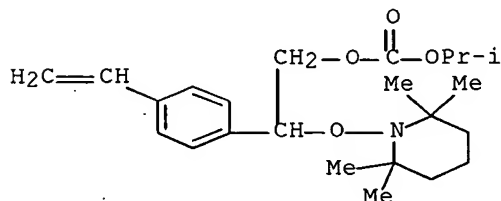
RN 313975-54-1 HCAPLUS

CN Carbonic acid, 2-(4-ethenylphenyl)-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl 1-methylethyl ester, polymer with 1-(chloromethyl)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

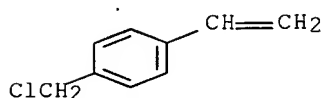
CRN 262616-04-6

CMF C23 H35 N O4



CM 2

CRN 1592-20-7
CMF C9 H9 Cl



IC ICM C07C239-20
ICS C07D211-94; C08F257-00; C08F004-00; C08F012-14
CC 35-2 (Chemistry of Synthetic High Polymers)
IT **313975-54-1P 313975-55-2P** 314774-28-2P
314774-29-3P 314776-49-3P 314776-50-6P 314776-51-7P
314776-52-8P 314776-53-9P
(preparation of vinyl-containing alkoxyamines used as polymerizable monomers
of polymeric radical initiators for manufacture of graft copolymers)
IT **262616-03-5P 262616-04-6P 262616-05-7P**
262616-06-8P 262616-07-9P 262616-08-0P
262616-09-1P 262616-10-4P 262616-11-5P
262616-12-6P 262846-44-6P 262846-45-7P 262846-46-8P
(radical-initiatable monomer; preparation of vinyl-containing alkoxyamines used as polymerizable monomers of polymeric radical initiators for manufacture of graft copolymers)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 29 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:610052 HCAPLUS Full-text
DOCUMENT NUMBER: 133:322184
TITLE: Synthesis of oligomers by stable free radical polymerization of acrylates, methacrylates, and styrene with **alkoxyamine initiators**
AUTHOR(S): Keul, Helmut; Achten, Dirk; Reining, Birte; Hocker, Hartwig
CORPORATE SOURCE: Lehrstuhl für Textilchemie und Makromolekulare Chemie der Rheinisch-Westfälischen Technischen Hochschule Aachen, Aachen, 52056, Germany
SOURCE: ACS Symposium Series (2000), 768 (Controlled/Living Radical Polymerization), 408-426
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 03 Sep 2000
AB A controlled polymerization of styrene (St) and Me acrylate (MA) yielding oligomers of $M_n \leq 2000$ was achieved using an alkoxyamine as the initiator. For the polymerization of Me methacrylate (MMA) side reactions leading to unsatd. end groups prohibit the control of the polymerization. The extent of the side reactions is explained by a sterically hindered combination of TEMPO with the active PMMA chain end. Copolymn. of MA with St reveals an increase of the polymerization rate compared to those of the homopolymns. and a good control of the MA/St copolymer composition within a wide range. The copolymn. parameters were found to be in good agreement with those observed in the free

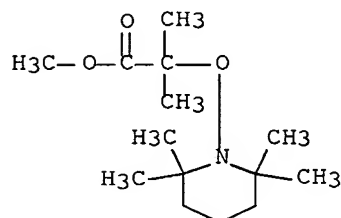
radical polymerization For the copolymn. of MMA with St a controlled polymerization was achieved at molar fractions of styrene higher than 50 %.

IT 115191-52-1

(synthesis of oligomers by stable free radical polymerization of acrylates, methacrylates, and styrene with **alkoxyamine initiators**)

RN 115191-52-1 HCAPLUS

CN Propanoic acid, 2-methyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, methyl ester (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

IT Polymerization

Polymerization catalysts

(radical; synthesis of oligomers by stable free radical polymerization of acrylates, methacrylates, and styrene with **alkoxyamine initiators**)

IT Polydispersity

(synthesis of oligomers by stable free radical polymerization of acrylates, methacrylates, and styrene with **alkoxyamine initiators**)

IT 2564-83-2, TEMPO 115191-52-1 154554-67-3
212128-87-5

(synthesis of oligomers by stable free radical polymerization of acrylates, methacrylates, and styrene with **alkoxyamine initiators**)

IT 9003-21-8P, Poly(methyl acrylate) 9003-53-6P, Polystyrene
9011-14-7P, PMMA 25034-86-0P, Methyl methacrylate-styrene copolymer
25036-19-5P, Methyl acrylate-styrene copolymer
(synthesis of oligomers by stable free radical polymerization of acrylates, methacrylates, and styrene with **alkoxyamine initiators**)

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 30 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:417358 HCAPLUS Full-text

DOCUMENT NUMBER: 133:164347

TITLE: Rate Constants for the Trapping of Various Carbon-Centered Radicals by Nitroxides: Unimolecular Initiators for Living Free Radical Polymerization

AUTHOR(S): Skene, W. G.; Scaiano, J. C.; Listigovers, Nancy A.; Kasmaier, Peter M.; Georges, Michael K.

CORPORATE SOURCE: Department of Chemistry, University of Ottawa, Ottawa, ON, K1N 6N5, Can.

SOURCE: Macromolecules (2000), 33(14), 5065-5072

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 23 Jun 2000

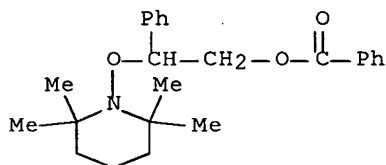
AB The recapping kinetics of a series of unimol. initiators for free radical polymerization were investigated. The rate consts. for the trapping of various carbon-centered radicals were analyzed as a function of structurally different nitroxides in order to determine suitable candidates for living free radical polymerization (LFRP). The technique of laser flash photolysis was used to determine the trapping rate consts. for the radicals in the presence of various amts. of nitroxide and to also gain insight into the properties of the LFRP process.

IT 81913-53-3P

(rate consts. for trapping of carbon-centered radicals by nitroxides and living radical polymerization)

RN 81913-53-3 HCAPLUS

CN Benzeneethanol, β -[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, 1-benzoate (CA INDEX NAME)



CC 35-2 (Chemistry of Synthetic High Polymers)

IT 81913-53-3P 117174-68-2P 154554-67-3P

183194-54-9P 212128-87-5P 288098-79-3P

(rate consts. for trapping of carbon-centered radicals by nitroxides and living radical polymerization)

REFERENCE COUNT: 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 31 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:244986 HCAPLUS Full-text

DOCUMENT NUMBER: 133:4352

TITLE: Tin-free radical cyclization reactions using the persistent radical effect

AUTHOR(S): Studer, Armido

CORPORATE SOURCE: Lab. Org. Chem., Eidg. Tech. Hochsch., Zurich, 8092, Switz.

SOURCE: Angewandte Chemie, International Edition (2000), 39(6), 1108-1111

CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH

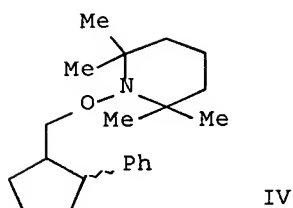
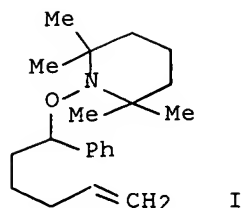
DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:4352

ED Entered STN: 17 Apr 2000

GI



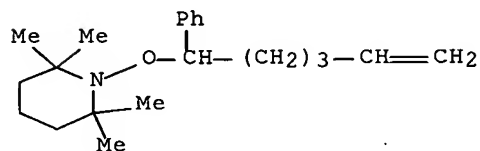
AB The persistent radical effect (the general principle that explains the highly specific formation of cross-coupling product R1-R2 between two radicals R1 and R2 when one species is long-lived and the other is transient and they are formed at equal rates) was exhibited in the isomerization of I to IV (up to 70% yield) in t-BuOH in presence of camphorsulfonic acid. Ionic and solvent-cage mechanisms were excluded. Scope and limitations of the reaction were examined by introducing Ph substituents and by varying the Ph group (e.g., 2-thienyl, 2-pyridyl) and the nitroxide moiety. Addnl. demonstrations of the superiority of the present alkoxyamine-mediated cyclization over the Bu3SnH-mediated reaction were presented.

IT **270901-39-8P**

(isomerization; tin-free radical cyclization reactions following C-O bond homolysis of (alkenyloxy)amines derived from long-lived nitroxides as a demonstration of the persistent radical effect)

RN 270901-39-8 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-[(1-phenyl-5-hexen-1-yl)oxy]- (CA INDEX NAME)



CC 22-5 (Physical Organic Chemistry)

IT **270901-39-8P 270901-51-4P 270901-52-5P**

270901-53-6P 270901-54-7P **270901-55-8P** 270901-56-9P

270901-79-6P **270901-83-2P** 270901-84-3P 270901-85-4P

270901-86-5P

(isomerization; tin-free radical cyclization reactions following C-O bond homolysis of (alkenyloxy)amines derived from long-lived nitroxides as a demonstration of the persistent radical effect)

IT **270902-07-3P**

(tin-free radical cyclization reactions following C-O bond homolysis of (alkenyloxy)amines derived from long-lived nitroxides as a demonstration of the persistent radical effect)

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 32 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:215991 HCAPLUS Full-text

DOCUMENT NUMBER: 132:250988

TITLE: One-step preparation of vinyl group-containing alkoxyamines as radical generators
 INVENTOR(S): Hayashi, Masaki; Nakamura, Tomoyuki
 PATENT ASSIGNEE(S): Nippon Oil and Fats Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000095744	A	20000404	JP 1999-177422	19990623
WO 2000078709	A1	20001228	WO 2000-JP3170	20000517
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2000046142	A	20010109	AU 2000-46142	20000517
EP 1188742	A1	20020320	EP 2000-927796	20000517
EP 1188742	B1	20041215		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 284862	T	20050115	AT 2000-927796	20000517
US 6919481	B1	20050719	US 2001-959754	20000517
PRIORITY APPLN. INFO.:			JP 1998-206146	A 19980722
			JP 1999-177422	A 19990623
			JP 1999-242052	A 19990827
			WO 2000-JP3170	W 20000517

OTHER SOURCE(S): CASREACT 132:250988; MARPAT 132:250988

ED Entered STN: 04 Apr 2000

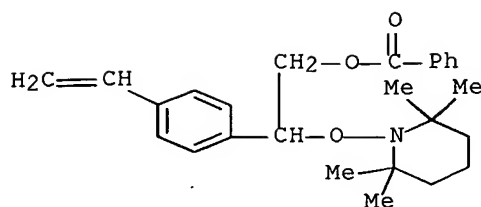
AB R1CO2CH2CH(ONR3R4)C6H4CH:CH2 [R1 = aryl; R2O; R2 = C1-12 linear or branched alkyl, cycloalkyl; R3, R4 = C4-6 tertiary alkyl; NR3R4 may form (un)substituted C8-16 ring], useful as polymerization initiators, antioxidants, and scorch inhibitors for polymers (no data), are prepared by heating divinylbenzene with nitroxides and organic peroxides to the thermal decomposition temperature of the peroxides. The products are stable in ionic reactions (no data). OHCH2CH(ONR3R4)C6H4CH:CH2 (R3, R4 = same as above), useful in functional group introduction or as ring-opening polymerization initiators (no data) are prepared by hydrolysis of the above products. 2,2,6,6-Tetramethylpiperidine-1-oxyl was treated with 1,4-divinylbenzene and Bz2O2 at 95° for 3.5 h to give 42.3% PhCO2CH2CH(OZ)C6H4CH:CH2-4 (Z = 2,2,6,6-tetramethylpiperidino).

IT 262616-03-5P

(one-step preparation of vinyl group-containing alkoxyamines as radical generators)

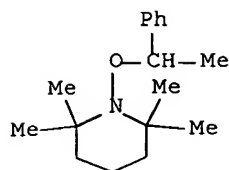
RN 262616-03-5 HCAPLUS

CN Benzeneethanol, 4-ethenyl-β-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]-, benzoate (ester) (9CI) (CA INDEX NAME)



IC ICM C07C239-20
ICS C07D211-94; C08F004-32
CC 25-18 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 35, 39, 67
IT **262616-03-5P 262616-04-6P 262616-05-7P**
262616-06-8P 262616-07-9P 262616-08-0P
262616-09-1P 262616-10-4P 262616-11-5P
262616-12-6P 262846-44-6P 262846-45-7P 262846-46-8P
(one-step preparation of vinyl group-containing alkoxyamines as radical generators)

L68 ANSWER 33 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:208068 HCAPLUS Full-text
DOCUMENT NUMBER: 132:334849
TITLE: A "penultimate" **initiator** for living free radical polymerization
AUTHOR(S): Skene, W. G.; Scaiano, J. C.; Yap, Glenn P. A.
CORPORATE SOURCE: Department of Chemistry, University of Ottawa, Ottawa, ON, K1N 6N5, Can.
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(1), 119-120
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 31 Mar 2000
AB To prevent disproportionation reaction of common TEMPO-based **initiators** (TEMPO = tetramethylpiperidine N-oxide) in living free radical polymerization, a new styrene dimer-connected TEMPO **initiator** was synthesized. The origins of disproportionation in addition to the kinetic and thermodyn. properties were examined. The 1-(2,2,6,6-tetramethylpiperidine-N-oxide)-1,3-diphenylpropane **initiator** was studied by absorption spectroscopy after irradiation, determination of rate constant for radical trapping, and **activation** parameters of thermal decomposition
IT **154554-67-3P**
(living free radical polymerization kinetics in presence of TEMPO-based **initiators**)
RN 154554-67-3 HCAPLUS
CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST radical polymn modified TEMPO **initiator**; TEMPO
 diphenylpropane prepn polymn **initiator** decompn kinetics
 trapping
 IT Reaction kinetics
 (homolytic; living free radical polymerization kinetics in presence of
 TEMPO-based **initiators**)
 IT Trapping
 (kinetics; living free radical polymerization kinetics in presence of
 TEMPO-based **initiators**)
 IT Decomposition kinetics
 Rotational energy
 (living free radical polymerization kinetics in presence of TEMPO-based
initiators)
 IT Polymerization **catalysts**
 (radical; living free radical polymerization kinetics in presence of
 TEMPO-based **initiators**)
 IT 72379-98-7, 1,3-Diphenylpropyl
 (living free radical polymerization kinetics in presence of TEMPO-based
initiators)
 IT 154554-67-3P
 (living free radical polymerization kinetics in presence of TEMPO-based
initiators)
 IT 124251-79-2P
 (preparation of TEMPO-based **initiators** TEMPO-based
initiators for living free radical polymerization)
 IT 2564-83-2, TEMPO
 (preparation of TEMPO-based **initiators** TEMPO-based
initiators for living free radical polymerization)
 IT 1081-75-0, 1,3-Diphenylpropane
 (preparation of TEMPO-based **initiators** TEMPO-based
initiators for living free radical polymerization)
 REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 34 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1999:757979 HCAPLUS Full-text
 DOCUMENT NUMBER: 132:108432
 TITLE: High-Yield Synthesis of Functionalized
Alkoxyamine Initiators and
 Approach to Well-Controlled Block Copolymers Using
 Them
 AUTHOR(S): Miura, Yozo; Hirota, Kenichi; Moto, Hiroaki;
 Yamada, Bunichiro
 CORPORATE SOURCE: Department of Applied Chemistry Faculty of
 Engineering, Osaka City University, Sumiyoshi-ku
 Osaka, 558-8585, Japan
 SOURCE: Macromolecules (1999), 32(25), 8356-8362

PUBLISHER:

American Chemical Society

DOCUMENT TYPE:

Journal

LANGUAGE:

English

ED Entered STN: 01 Dec 1999

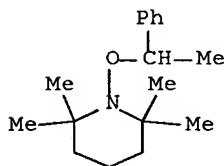
AB Reaction of ethylbenzene, 4-bromo-, 4-(ethoxycarbonyl)-, and 4-methoxyethylbenzenes with di-tert-Bu diperoxyoxalate at 35 °C in the presence of stable nitroxide radicals gave alkoxyamines in 50-91% yields. Lithiation of the 4-bromophenylalkoxyamine and subsequent treatment with DMF gave 4-formylphenylalkoxyamine in 95% yield, and the reduction of the 4-formylphenylalkoxyamine with NaBH₄ yielded 4-(hydroxymethyl)phenylalkoxyamine in 89% yield. Anionic polymerization of butadiene (BD) with sec-BuLi and subsequent termination with 4-formylphenylalkoxyamine gave an end-functionalized poly(butadiene) [poly(BD)]. "Living" radical polymerization of styrene (St) initiated by the functionalized poly(BD) at 120 °C gave a poly(BD)-block-poly(St) with a Mw/Mn of 1.30. Anionic polymerization of hexamethylcyclotrisiloxane (D3) with 4-lithiophenylalkoxyamine gave poly(D3) with an alkoxyamine moiety at a polymer end. "Living" radical polymerization of St initiated by the functionalized poly(D3) gave poly(D3)-block-poly(St) with Mw/Mn's of 1.73-1.80.

IT 154554-67-3P

(high-yield synthesis of functionalized **alkoxyamine initiators** and their use in block polymerization)

RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)

CC 35-8 (Chemistry of Synthetic High **Polymers**)

IT Amines, preparation

(alkoxy-; high-yield synthesis of functionalized **alkoxyamine initiators** and their use in block polymerization)

IT Polysiloxanes, preparation

(block copolymers with styrene; high-yield synthesis of functionalized **alkoxyamine initiators** and their use in block polymerization)

IT Polymerization catalysts

(high-yield synthesis of functionalized **alkoxyamine initiators** and their use in block polymerization)

IT 154554-67-3P 178625-97-3P 183194-54-9P

209550-19-6P 209550-20-9P 209550-21-0P

209550-24-3P 209550-25-4P

(high-yield synthesis of functionalized **alkoxyamine initiators** and their use in block polymerization)

IT 4748-78-1

(high-yield synthesis of functionalized **alkoxyamine initiators** and their use in block polymerization)

IT 209550-22-1P 209550-23-2P

(high-yield synthesis of functionalized **alkoxyamine**

- initiators** and their use in block polymerization)
- IT 106107-54-4P, 1,3-Butadiene-styrene block copolymer 109668-88-4P,
Hexamethylcyclotrisiloxane-styrene block copolymer
(high-yield synthesis of functionalized **alkoxyamine**
initiators and their use in block polymerization)
- IT 9003-17-2DP, Polybutadiene, alkoxyamine-terminated 9003-53-6P,
Polystyrene
(in block polymer preparation; high-yield synthesis of functionalized
alkoxyamine initiators and their use in block
polymerization)
- IT 25084-99-5DP, Hexamethylcyclotrisiloxane homopolymer,
alkoxyamine-terminated
(in block polymer preparation; high-yield synthesis of functionalized
alkoxyamine initiators and their use in block
polymerization)
- IT 100-41-4, Ethylbenzene, reactions 1876-22-8 2564-83-2, TEMPO
(in catalyst preparation; high-yield synthesis of functionalized
alkoxyamine initiators and their use in block
polymerization)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L68 ANSWER 35 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:595167 HCAPLUS Full-text

DOCUMENT NUMBER: 131:229163

TITLE: Nitroxyl derivatives with glycidyl or
alkylcarbonyl groups as initiators for radical
polymerization

INVENTOR(S): Fuso, Francesco; Roth, Michael; Wunderlich, Wiebke

PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.

SOURCE: PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9946261	A1	19990916	WO 1999-EP1233	19990226
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
TW 495515	B	20020721	TW 1999-88100735	19990118
CA 2321792	A1	19990916	CA 1999-2321792	19990226
AU 9929296	A	19990927	AU 1999-29296	19990226
EP 1071681	A1	20010131	EP 1999-910286	19990226
EP 1071681	B1	20060830		
R:	BE, DE, ES, FR, GB, IT, NL			
JP 2002506070	T	20020226	JP 2000-535640	19990226
IN 1999MA00275	A	20070511	IN 1999-MA275	19990308
US 6566468	B1	20030520	US 2000-623547	20000905
MX 2000PA08767	A	20010328	MX 2000-PA8767	20000908
US 2002107397	A1	20020808	US 2001-13884	20011211

US 6683142	B2	20040127		
US 2003220423	A1	20031127	US 2003-422497	20030424
US 6927295	B2	20050809		
US 2005131177	A1	20050616	US 2005-35915	20050114
PRIORITY APPLN. INFO.:			EP 1998-810194	A 19980309
			EP 1998-810531	A 19980611
			WO 1999-EP1233	W 19990226
			US 1999-262804	A3 19990304
			US 2001-13884	A3 20011211
			US 2003-422497	A3 20030424

OTHER SOURCE(S): MARPAT 131:229163

ED Entered STN: 21 Sep 1999

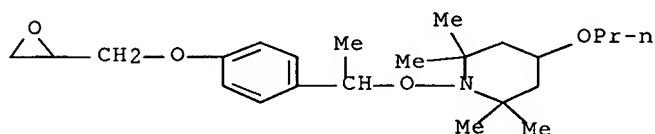
AB Cyclic and linear nitroxyl derivs. having glycidyl or alkylcarbonyl groups attached to the O of the nitroxyl group such as are useful as initiators for radical polymerization of ethylenically unsatd. monomers to give polymers with narrow polydispersity at high monomer conversion, relatively low temps., and short reaction times. A typical initiator was manufactured by adding a solution containing 50 g 2-(4-ethylphenoxyethyl)oxirane (I) and 26.4 g tert-Bu hydroperoxide in 30 min to a mixture containing I 57, 4-propoxy-2,2,6,6-tetramethylpiperidine 1-oxyl 10.7, and MoO₃ 0.72 g at 70° with stirring, reducing the pressure to 200 millibar, and heating 18 h at 100°.

IT 243972-01-2P

(nitroxyl derivs. with glycidyl or alkylcarbonyl groups as initiators for radical polymerization)

RN 243972-01-2 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-[1-[4-(oxiranylmethoxy)phenyl]ethoxy]-4-propoxy- (9CI) (CA INDEX NAME)



IC ICM C07D405-12

ICS C07D211-94; C08F004-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 23, 27

IT 243972-01-2P 243972-02-3P 243972-03-4P

243972-04-5P 243972-05-6P 243972-06-7P

243972-07-8P 243972-08-9P 243972-10-3P

243972-11-4P 243972-12-5P 243972-13-6P

243972-14-7P 243972-15-8P 243972-16-9P

243972-17-0P 243972-18-1P

(nitroxyl derivs. with glycidyl or alkylcarbonyl groups as initiators for radical polymerization)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 36 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:317797 HCAPLUS Full-text

DOCUMENT NUMBER: 131:102577

TITLE: Synthesis and characterization of ω -unsaturated poly(styrene-*b*-*n*-butyl methacrylate) block copolymers using TEMPO-mediated controlled radical polymerization

AUTHOR(S): Burguiere, Carine; Dourges, Marie-Anne; Charleux, Bernadette; Vairon, Jean-Pierre

CORPORATE SOURCE: Laboratoire de Chimie Macromoleculaire, Unite Mixte associee au CNRS UMR 7610, Universite Pierre et Marie Curie, Paris, 75252, Fr.

SOURCE: Macromolecules (1999), 32(12), 3883-3890
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 25 May 1999

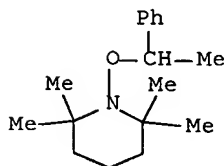
AB Bu methacrylate has been polymerized in bulk at 130°C in the presence of given amts. of a nitroxide stable free radical (TEMPO = 2,2,6,6-tetramethylpiperidine-N-oxyl) using either a low mol. weight **alkoxyamine initiator** [2,2,6,6-tetramethyl-1-(1-phenethyloxy)piperidine] or a TEMPO-capped polystyrene macroinitiator. Complete consumption of both initiators was always observed. In contrast, very low final monomer conversions were found. Proton NMR spectroscopy and MALDI-TOF mass spectrometry were used for investigation of the polymer structure. They showed that the formed poly(Bu methacrylate) had the attached initiator at one end and that a block copolymer was synthesized when the polystyrene macroinitiator was used. The other terminal functionality of the polymer was not a TEMPO-based alkoxyamine but a methylene unsatn. exclusively. Particularly, no saturated polymer which would also be formed by conventional disproportionation reaction between two propagating radicals could be detected. From this result, it was concluded that the main chain-breaking event is the β -hydrogen transfer from a propagating radical to TEMPO (also called disproportionation reaction). The initial concentration of added TEMPO was shown to directly influence the poly(Bu methacrylate) block length independently of the initial concentration of alkoxyamine: the larger the concentration of TEMPO, the shorter the block length. The rate constant of disproportionation was calculated to be $k_{dis} = 1.4 \times 10^6 \text{ L mol}^{-1} \text{ s}^{-1}$ at 130 °C.

IT 154554-67-3

(diblock polymer preparation using TEMPO-mediated controlled radical polymerization)

RN 154554-67-3 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-phenylethoxy)- (CA INDEX NAME)

CC 35-3 (Chemistry of Synthetic High **Polymers**)

IT 2564-83-2 154554-67-3

(diblock polymer preparation using TEMPO-mediated controlled radical

polymerization)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 37 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:211299 HCAPLUS Full-text

DOCUMENT NUMBER: 130:352729

TITLE: Novel methods for the fabrication of well-defined and patterned polymer brushes

AUTHOR(S): Benoit, Didier; Husemann, Marc; Mecerreyes, David; Morrison, Michael; Hinsberg, William; Hawker, Craig J.; Hedrick, James L.; Shah, Rahul; Abbott, Nicholas L.

CORPORATE SOURCE: IBM Almaden Research Center, San Jose, CA, 95120-6099, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(1), 498-499

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 05 Apr 1999

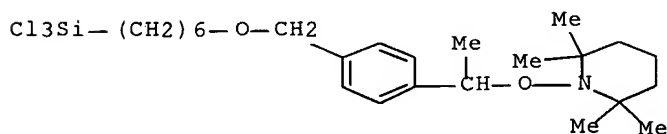
AB Strategies were developed for the preparation of patterned polymer brushes, either isolated structures from microcontact printed Au surfaces, or chemical patterning of continuous brush structures using lithog. techniques. A non-reactive self-assembled monolayer [SAM] of CH₃(CH₂)₁₅SH is microcontact printed onto a gold surface, then HO(CH₂CH₂O)₂(CH₂)₁₁SH was selectively assembled onto the bare regions of the gold surface. The final step is surface initiated ring opening polymerization of ε-caprolactone or polymerization of other monomers from the functionalized areas of the patterned SAM based on the hydroxyl groups as initiators. Another strategy involves the patterning of a continuous polymer brush into areas of hydrophilic and hydrophobic chains; an **alkoxyamine initiator** can be readily hydrosilylated with trichlorosilane to obtain the trichlorosilyl derivative. This derivative can be attached to a variety of surfaces, e.g., native silicon oxide layer of silicon wafers by reaction with the surface silanol groups. Polymer brushes can then be grown on the functionalized surface from vinyl monomers. Patterning of polymer brushes involved spin coating a photoresist layer on the polymer brush, exposure of the photoresist to deep-UV irradiation through a mask, forming a photoacid that diffuses to the polymer brush. Removal of the photoresist led to the patterned brush.

IT 225229-07-2P

(novel methods for fabrication of well-defined and patterned polymer brushes)

RN 225229-07-2 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-[1-[4-[[[6-(trichlorosilyl)hexyl]oxy)methyl]phenyl]ethoxy]- (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): **36**

IT **225229-07-2P**

(novel methods for fabrication of well-defined and patterned polymer brushes)

IT 821-41-0, Hex-5-en-1-ol 10025-78-2, Trichlorosilane

212132-38-2

(novel methods for fabrication of well-defined and patterned polymer brushes)

IT **225229-06-1P**

(novel methods for fabrication of well-defined and patterned polymer brushes)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 38 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:211107 HCAPLUS Full-text

DOCUMENT NUMBER: 130:352602

TITLE: Preparation of **alkoxyamine** **initiators** carrying a functional group

AUTHOR(S): Miura, Yozo; Hirota, Kenichi; Moto, Hiroaki; Yamada, Bunichiro

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Osaka City University, Osaka, 558-8585, Japan

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(1), 123-124

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 05 Apr 1999

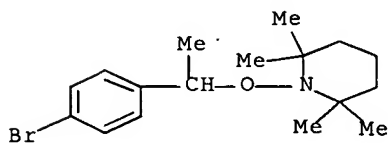
AB Alkoxyamines useful as catalysts for living radical polymerization are prepared in high yields by the reaction of ethylbenzene with di-tert-Bu peroxalate at 35° in the presence of stable nitroxides such as TEMPO and di-tert-Bu nitroxide. By using this procedure functionalized alkoxyamines including p-bromo substituted alkoxyamine were also prepared in high yield. Furthermore, p-Formyl and p-hydroxymethyl substituted alkoxyamines were obtained from the p-bromo substituted alkoxyamine.

IT **178625-97-3P**

(catalysts; preparation of **alkoxyamine** **initiators** for living radical polymerization)

RN 178625-97-3 HCAPLUS

CN Piperidine, 1-[1-(4-bromophenyl)ethoxy]-2,2,6,6-tetramethyl- (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 IT Polymerization catalysts
 Polymerization catalysts
 (living, radical; preparation of **alkoxyamine**
initiators containing functional group)
 IT 178625-97-3P 209550-20-9P 209550-21-0P
 209550-22-1P 209550-23-2P 209550-24-3P
 (catalysts; preparation of **alkoxyamine initiators**
 for living radical polymerization)
 IT 68-12-2, DMF, reactions 100-41-4, Ethylbenzene, reactions
 594-19-4, tert-Butyllithium 1876-22-8, Di-tert-butyl peroxalate
 2406-25-9, Di-tert-butyl nitroxide 2564-83-2, TEMPO 3229-53-6,
 2,2,5,5-Tetramethylpyrrolidinyl-1-oxyl
 (in preparation of **alkoxyamine initiators** for living
 radical polymerization)
 IT 9003-53-6P, Polystyrene
 (preparation of in presence of **alkoxyamine initiators**
)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L68 ANSWER 39 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:87261 HCAPLUS Full-text

DOCUMENT NUMBER: 130:237921

TITLE: Direct Synthesis of Dispersed Nanocomposites by in
 Situ Living Free Radical Polymerization Using a
 Silicate-Anchored **Initiator**

AUTHOR(S): Weimer, Marc W.; Chen, Hua; Giannelis, Emmanuel
 P.; Sogah, Dotsevi Y.

CORPORATE SOURCE: Department of Chemistry and Chemical Biology Baker
 Laboratory Department of Materials Science and
 Engineering, Cornell University, Ithaca, NY,
 14853, USA

SOURCE: Journal of the American Chemical Society (1999),
 121(7), 1615-1616

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

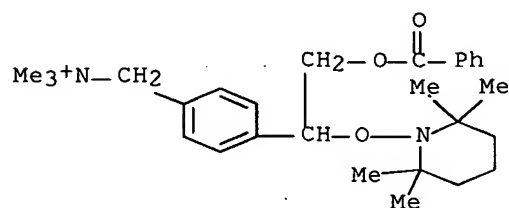
ED Entered STN: 11 Feb 1999

AB Anchoring a living free radical polymerization (LFRP) **initiator** inside the
 galleries of layered silicate hosts followed by intercalation and
 polymerization of styrene gives directly dispersed polystyrene(PS)-silicate
 nanocomposite. The **initiator** was prepared and ion-exchanged onto a com.
 montmorillonite layered silicate to obtain the intercalated species. The LFRP
 was carried out by heating a dispersion of the intercalated **initiator** species
 in styrene for 4 h; the system solidified completely to yield the
 nanocomposite of silicate randomly dispersed spatially and directionally in
 the polystyrene matrix consisting of small domains. This level of uniform
 dispersion is not achievable by either melt or solution intercalation of a
 preformed polystyrene. The polymer was desorbed from the silicate by
 refluxing the nanocomposite in THF/LiBr; the low polydispersity index (PDI) of
 1.3 and the agreement between the calculated number-average mol. weight (Mn)
 of 24 400 and observed Mn of 21 500, indicate a remarkably well-behaved
 reaction even under such heterogeneous conditions.

IT 221362-46-5P

(radical **initiator**; preparation of radical **initiator**
 for synthesis of dispersed silicate-polystyrene nanocomposites)

RN 221362-46-5 HCAPLUS
 CN Benzenemethanaminium, 4-[2-(benzoyloxy)-1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]-N,N,N-trimethyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

CC 35-4 (Chemistry of Synthetic High **Polymers**)
 Section cross-reference(s): **37**, **57**
 ST polystyrene layered silicate hybrid nanocomposite anchoring **initiator**
 IT Polymerization
 Polymerization **catalysts**
 (radical; synthesis of dispersed nanocomposites by in situ living free radical polymerization using silicate-anchored **initiator**)
 IT Dispersion (of materials)
 Hybrid organic-inorganic materials
 Intercalation
 Ion exchange
 Polydispersity
 (synthesis of dispersed nanocomposites by in situ living free radical polymerization using silicate-anchored **initiator**)
 IT 9003-53-6P
 (nanocomposites; synthesis of dispersed nanocomposites by in situ living free radical polymerization using silicate-anchored **initiator**)
 IT 75-50-3, reactions
 (preparation of radical **initiator** for synthesis of dispersed silicate-polystyrene nanocomposites)
 IT **221362-46-5P**
 (radical **initiator**; preparation of radical **initiator** for synthesis of dispersed silicate-polystyrene nanocomposites)
 IT 216104-33-5
 (radical **initiator**; preparation of radical **initiator** for synthesis of dispersed silicate-polystyrene nanocomposites)
 IT 1318-93-0, Montmorillonite, uses
 (support and nanocomposite component; synthesis of dispersed nanocomposites by in situ living free radical polymerization using silicate-anchored **initiator**)
 REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 40 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1999:76038 HCAPLUS Full-text
 DOCUMENT NUMBER: 130:237911

TITLE: Controlled Synthesis of Polymer Brushes by
"Living" Free Radical Polymerization Techniques

AUTHOR(S): Husseman, Marc; Malmstroem, Eva E.; McNamara,
Molly; Mate, Mathew; Mecerreyes, David; Benoit,
Didier G.; Hedrick, James L.; Mansky, Paul; Huang,
E.; Russell, Thomas P.; Hawker, Craig J.

CORPORATE SOURCE: Center for Polymeric Interfaces and Macromolecular
Assemblies, IBM Almaden Research Center, San Jose,
CA, 95120-6099, USA

SOURCE: Macromolecules (1999), 32(5), 1424-1431
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

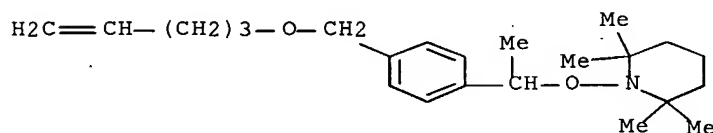
ED Entered STN: 05 Feb 1999

AB The preparation of a wide variety of unique polymer brush structures can be
accomplished by living free radical polymerization of vinyl monomers from
surface-tethered alkoxyamines or from tethered α -halo esters in the presence
of $(PPh_3)_2NiBr_2$. The use of a living free radical process permits the mol.
weight and polydispersity of the covalently attached polymer chains to be
accurately controlled while also allowing the formation of block copolymers by
the sequential growth of monomers from the surface. These block and random
copolymer brushes were used to control surface properties.

IT **212132-49-5P**
(alkoxyamine precursor; controlled synthesis of polystyrene and
polymethacrylate brushes by living free radical polymerization using
surface-tethered **alkoxyamine initiators**)

RN 212132-49-5 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-[1-[4-[(4-
pentenyloxy)methyl]phenyl]ethoxy]- (9CI) (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

IT Polymers, preparation
(brush; controlled synthesis of polystyrene and polymethacrylate
brushes by living free radical polymerization using surface-tethered
alkoxyamine initiators)

IT Polymer chains
(brushes; controlled synthesis of polystyrene and polymethacrylate
brushes by living free radical polymerization using surface-tethered
alkoxyamine initiators)

IT Hydrosilylation
Polydispersity
(controlled synthesis of polystyrene and polymethacrylate brushes
by living free radical polymerization using surface-tethered
alkoxyamine initiators)

IT Polymerization
Polymerization catalysts
(radical; controlled synthesis of polystyrene and polymethacrylate
brushes by living free radical polymerization using surface-tethered

- alkoxyamine initiators)**
- IT 212132-49-5P 221318-43-0P
(alkoxyamine precursor; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 110-05-4, Di-tert-butyl peroxide 16940-66-2, Sodium borohydride 135620-04-1, Jacobsen's catalyst
(controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 821-09-0, Pent-4-enol 1066-35-9, Dimethylchlorosilane 1592-20-7 2564-83-2, 2,2,6,6-Tetramethylpiperidinyloxy 7646-69-7, Sodium hydride 10025-78-2, Trichlorosilane 212132-38-2
(controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 9003-53-6P 9011-14-7P, Poly(methyl methacrylate) 26010-51-5P, 2-Hydroxyethyl methacrylate-styrene copolymer 106911-77-7P, Methyl methacrylate-styrene block copolymer
(controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 600-00-0, Ethyl-2-bromo-2-methylpropionate 154554-67-3
(controlling initiator; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 212132-48-4P 221318-51-0P
(intermediate; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 14126-37-5
(polymerization catalyst; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 821-41-0, 5-Hexen-1-ol 20769-85-1, 2-Bromo-2-methylpropionyl bromide 89359-54-6 161776-41-6, 2-Phenyl-2-[(2,2,6,6-tetramethylpiperidino)oxy]ethanol
(starting material; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 7631-86-9, Silica, reactions
(substrate surface reactive layer; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 221318-45-2P 221318-47-4P
(surface bound initiator; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 221318-53-2P
(surface-bound initiator; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**
- IT 7440-21-3, Silicon, uses
(wafer, substrate; controlled synthesis of polystyrene and polymethacrylate brushes by living free radical polymerization using surface-tethered **alkoxyamine initiators)**

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 41 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:509835 HCAPLUS Full-text

DOCUMENT NUMBER: 129:216942

TITLE: Meisenheimer Rearrangement of Allyl N-Oxides as a Route to **Initiators** for Nitroxide-Mediated "Living" Free Radical Polymerizations

AUTHOR(S): Bergbreiter, David E.; Walchuk, Brian

CORPORATE SOURCE: Department of Chemistry, Texas A&M University, College Station, TX, 77842, USA

SOURCE: Macromolecules (1998), 31(18), 6380-6382

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 18 Aug 1998

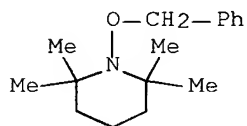
AB A new method was developed for preparing unimol. **initiators** for the living radical polymerization of styrene based on the oxidation and Meisenheimer rearrangement of allylic N-oxide derivs. of 2,2,6,6-tetramethylpiperidine. The N-allyl derivs. of 2,2,6,6-tetramethylpiperidine were oxidized to the corresponding N-oxide by treatment with m-chloroperbenzoic acid. This product spontaneously rearranges under the reaction conditions to give O-allyl TEMPO derivs. The TEMPO derivs. were evaluated as **catalysts** for the living radical polymerization of styrene.

IT 102261-92-7P

(polymerization **catalyst**; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)

RN 102261-92-7 HCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(phenylmethoxy)- (CA INDEX NAME)

CC 35-3 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): 27

ST Meisenheimer rearrangement allyloxy TEMPO deriv prepn; polymn **catalyst** allyloxy TEMPO deriv prepn; styrene living radical polymn **catalyst**

IT Rearrangement

(Meisenheimer; in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)

IT Polymerization

(living, radical, kinetics; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)

IT Polymerization

Polymerization

(living, radical, mechanism; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)

IT Polymerization **catalysts**Polymerization **catalysts**

Polymerization kinetics

(living, radical; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)

- IT 9003-53-6P, Polystyrene
(Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)
- IT 783-76-6P, 1-Benzyl-2,2,6,6-Tetramethylpiperidine 54262-93-0P,
1-Allyl-2,2,6,6-Tetramethylpiperidine 204905-80-6P 204905-84-0P
(**catalyst** intermediate; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)
- IT 100-39-0, Benzyl bromide 106-95-6, Allyl bromide, reactions
768-66-1, 2,2,6,6-Tetramethylpiperidine 870-63-3, Prenyl bromide
4392-24-9, Cinnamyl bromide
(**catalyst** starting material; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)
- IT 100-42-5, processes
(kinetics and polymerization mechanism; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)
- IT 212576-03-9P
(polymerization **catalyst** byproduct; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)
- IT 102261-92-7P 131531-08-3P 131749-90-1P 204906-02-5P
(polymerization **catalyst**; Meisenheimer rearrangement in preparation of allyloxy TEMPO derivs. for polymerization **catalysts** for styrene living radical polymerization)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L68 ANSWER 42 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:503834 HCAPLUS Full-text

DOCUMENT NUMBER: 129:203301

TITLE: A versatile and efficient synthesis of alkoxyamine
LFR initiators via manganese based asymmetric
epoxidation catalysts

AUTHOR(S): Dao, Julian; Benoit, Didier; Hawker, Craig J.

CORPORATE SOURCE: Center for Polymeric Interfaces and Macromolecular
Assemblies, IBM Research Division, Almaden
Research Center, San Jose, CA, 95120-6099, USA

SOURCE: Journal of Polymer Science, Part A: Polymer
Chemistry (1998), 36(12), 2161-2167
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

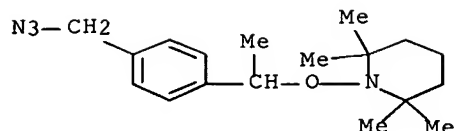
ED Entered STN: 14 Aug 1998

AB Styrene derivs. were treated with TEMPO in the presence of manganese complex
epoxidn. catalysts to give piperidine ethers that were useful as living free
radical polymerization catalysts.

IT 212132-52-0P
(synthesis of alkoxyamine living free radical polymerization initiators
via manganese-based asym. epoxidn. catalysts)

RN 212132-52-0 HCAPLUS

CN Piperidine, 1-[1-[4-(azidomethyl)phenyl]ethoxy]-2,2,6,6-tetramethyl-
(CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 27

IT 212132-52-0P

(synthesis of alkoxyamine living free radical polymerization initiators via manganese-based asym. epoxidn. catalysts)

IT 178625-98-4P 184646-30-8P 209550-21-0P

209550-24-3P 212132-38-2P 212132-39-3P

212132-40-6P 212132-41-7P 212132-43-9P

212132-45-1P 212132-47-3P 212132-49-5P

212132-50-8P 212132-51-9P 212132-53-1P

(synthesis of alkoxyamine living free radical polymerization initiators via manganese-based asym. epoxidn. catalysts)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 43 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:411135 HCAPLUS Full-text

DOCUMENT NUMBER: 129:95758

TITLE: High-Yield Synthesis of **Alkoxyamine Initiators** Carrying a Functional Group by Reaction of Ethylbenzenes with Di-tert-butyl Diperoxalate in the Presence of Nitroxides
AUTHOR(S): Miura, Yozo; Hirota, Kenichi; Moto, Hiroaki; Yamada, Bunichiro

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Osaka City University, Osaka, 558-8585, Japan

SOURCE: Macromolecules (1998), 31(14), 4659-4661
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Jul 1998

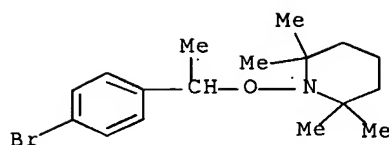
AB The reaction of ethylbenzenes with di-tert-Bu diperoxalate in the presence of nitroxides at 35° gives alkoxyamines, including 4-bromo, 4-ethoxycarbonyl, and 4-methoxy derivs. in good yields. Bulk polymerization of styrene initiated by 4-ethoxycarbonyl alkoxyamines was carried out at 120°. The polydispersity of polystyrene obtained is <1.3, indicating that these functionalized alkoxyamines can be used for the syntheses of controlled macromol. architectures.

IT 178625-97-3P

(preparation of **alkoxyamine** initiators from ethylbenzenes with t-bu-diperoxalate and nitroxides and use in controlled styrene polymerization)

RN 178625-97-3 HCAPLUS

CN Piperidine, 1-[1-(4-bromophenyl)ethoxy]-2,2,6,6-tetramethyl- (CA INDEX NAME)



- CC 35-3 (Chemistry of Synthetic High **Polymers**)
Section cross-reference(s): 27, 67
- ST alkoxyamine prepn radical polymn initiator; styrene polymn
ethoxycarbonyl **alkoxyamine initiator**
- IT Polydispersity
(preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- IT Polymerization catalysts
(radical; preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- IT **178625-97-3P**
(preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- IT **154554-67-3P**, 2,2,6,6-Tetramethyl-1-(1-phenylethoxy)piperidine
209550-19-6P 209550-20-9P 209550-21-0P
209550-24-3P
(preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- IT 68-12-2, DMF, reactions 100-41-4, Ethylbenzene, reactions 594-19-4
2406-25-9, DTBN 2564-83-2, TEMPO 3141-58-0, tert-Butoxyl radical
3229-53-6, Proxo 16853-85-3, Lithium aluminum hydride
183194-54-9
(preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- IT **209550-22-1P 209550-23-2P**
(preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- IT 9003-53-6P, Polystyrene **209550-25-4P**
(preparation of **alkoxyamine initiators** from
ethylbenzenes with t-bu-diperoxalate and nitroxides and use in
controlled styrene polymerization)
- REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L68 ANSWER 44 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:142814 HCAPLUS Full-text

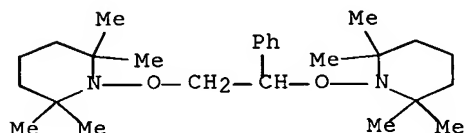
DOCUMENT NUMBER: 126:186432

TITLE: Reactions of the "stable" nitroxide radical TEMPO.
Relevance to "living" free radical polymerizations
and autopolymerization of styrene

AUTHOR(S): Connolly, Terrence J.; Scaiano, J. C.

CORPORATE SOURCE: Department of Chemistry, University of Ottawa,
Ottawa, ON, K1N 6N5, Can.

SOURCE: Tetrahedron Letters (1997), 38(7), 1133-1136
 CODEN: TELEAY; ISSN: 0040-4039
 PUBLISHER: Elsevier
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 05 Mar 1997
 AB The stable nitroxide TEMPO reacts with styrene and polystyrene models under conditions typically used for polymns. These results show that the nitroxide is not inert at the elevated temps. necessary to conduct polymns. The implications of H abstraction and olefin addition by the nitroxide are discussed, particularly as they apply to **initiation**, control of polydispersity and nitroxide mediated autopolymn. of styrene.
 IT **187410-28-2P**
 (preparation in reaction of styrene with TEMPO)
 RN 187410-28-2 HCAPLUS
 CN Piperidine, 1,1'-[(1-phenyl-1,2-ethanediyl)bis(oxy)]bis[2,2,6,6-tetramethyl- (CA INDEX NAME)]



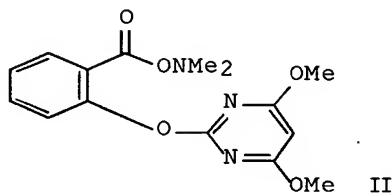
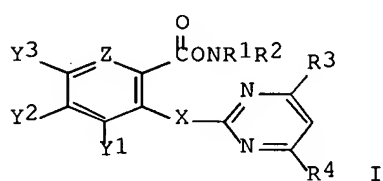
CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST TEMPO mediated living polymn styrene; mechanism TEMPO mediated living polymn styrene; **initiator** TEMPO living polymn styrene
 IT Polymerization
 Polymerization **catalysts**
 Polymerization **catalysts**
 (living, radical; mechanism of TEMPO-mediated living autopolymn. of styrene)
 IT **187410-28-2P**
 (preparation in reaction of styrene with TEMPO)
 REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 45 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1991:492290 HCAPLUS Full-text
 DOCUMENT NUMBER: 115:92290
 TITLE: Preparation of (aminooxycarbonyl)aryloxypyrimidines and -arylthiopyrimidines as herbicides
 INVENTOR(S): Hiratsuka, Mitsunori; Hirata, Naonori; Saitoh, Kazuo; Shibata, Hideyuki
 PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 80 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 426476	A1	19910508	EP 1990-311985	19901101

EP 426476	B1	19940727		
R: BE, CH, DE, DK, ES, FR, GB, IT, LI, NL				
US 5125957	A	19920630	US 1990-602689	19901024
CA 2029027	A1	19910502	CA 1990-2029027	19901031
AU 9065703	A	19910509	AU 1990-65703	19901031
AU 629999	B2	19921015		
CN 1051556	A	19910522	CN 1990-108773	19901031
CN 1028714	B	19950607		
HU 55603	A2	19910628	HU 1990-6966	19901031
HU 208230	B	19930928		
BR 9005540	A	19910917	BR 1990-5540	19901031
RU 2029471	C1	19950227	RU 1990-4831578	19901031
JP 04178371	A	19920625	JP 1990-297558	19901101
ES 2057437	T3	19941016	ES 1990-311985	19901101
US 5300640	A	19940405	US 1991-810166	19911219
AU 9221139	A	19921022	AU 1992-21139	19920820
AU 644538	B2	19931209		
PRIORITY APPLN. INFO.:			JP 1989-287133	A 19891101
			JP 1990-142390	A 19900530
			JP 1990-213934	A 19900810
			US 1990-602689	A3 19901024

OTHER SOURCE(S): MARPAT 115:92290
ED Entered STN: 06 Sep 1991
GI



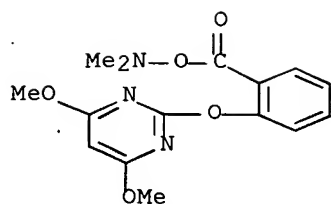
AB Title compds. [I; R1, R2 = H, alkyl, alkenyl, alkynyl, haloalkyl, alkoxyalkyl, alkenyloxyalkyl, alkoxy carbonylalkyl, cyanoalkyl, (CH₂)_nCONR₅R₆, (CH₂)_nS(O)mR₇, etc.; R3, R4 = alkyl, alkoxy, haloalkoxy, halo; R5, R6 = H, alkyl, alkenyl, alkynyl; R7 = alkyl, alkenyl, alkynyl; m = 0-2; n = 1-4; Y1-Y3 = H, halo, alkyl, alkoxy; X = O, S; Z = N, CY4; Y4 = H, OH, SH, NO₂, halo, alkyl, alkenyl, alkynyl, alkoxy, haloalkyl, cyano, CHO, CO₂H, alkoxy carbonyl, (substituted) Ph, PhO, PhS, PhCH₂O, PhCH₂S, etc.] were prepared. Thus, 2-(4,6-dimethoxypyrimidin-2-yl)oxybenzoic acid, carbonyldiimidazole, and Me₂NOH were stirred 12 h in THF/CH₂Cl₂ to give title compound II. Several I at 0.31 g/a preemergent gave complete control of velvetleaf.

IT **135564-62-4P**

(preparation of, as herbicide)

RN 135564-62-4 HCAPLUS

CN Methanamine, N-[[2-[(4,6-dimethoxy-2-pyrimidinyl)oxy]benzoyl]oxy]-N-methyl- (9CI) (CA INDEX NAME)



IC ICM C07D239-34
ICS C07D239-52; C07D239-38; C07D401-12; C07D213-62; C07C239-22;
C07C323-62; A01N043-54

CC 28-16 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 5

IT **135564-62-4P** 135564-63-5P 135564-64-6P 135564-65-7P
135564-66-8P **135564-67-9P** **135564-68-0P**
135564-69-1P **135564-70-4P** **135564-71-5P**
135564-72-6P **135564-73-7P** **135564-74-8P**
135564-75-9P **135564-76-0P** **135564-77-1P**
135564-78-2P **135564-79-3P** **135564-80-6P**
135564-81-7P 135564-82-8P **135564-83-9P**
135564-84-0P 135564-85-1P 135564-86-2P 135564-87-3P
135564-88-4P 135564-89-5P 135564-90-8P 135564-91-9P
135564-92-0P 135564-93-1P **135564-94-2P** 135564-95-3P
135564-96-4P 135564-97-5P 135564-98-6P 135564-99-7P
135565-00-3P 135565-01-4P 135565-02-5P **135565-03-6P**
135565-04-7P **135565-05-8P** 135565-06-9P
135565-07-0P 135565-08-1P 135565-09-2P
135565-10-5P 135565-11-6P 135565-12-7P 135565-13-8P
135587-60-9P

(preparation of, as herbicide)

IT **135565-14-9P** 135565-15-0P **135565-16-1P**
135565-17-2P **135565-18-3P** 135565-19-4P
135565-20-7P 135565-21-8P 135565-22-9P 135565-23-0P
135565-24-1P 135565-25-2P

(preparation of, as herbicide intermediate)

L68 ANSWER 46 OF 46 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1985:221335 HCAPLUS Full-text

DOCUMENT NUMBER: 102:221335

ORIGINAL REFERENCE NO.: 102:34745a,34748a

TITLE: Free radical polymerization and the produced polymers

INVENTOR(S): Solomon, David Henry; Rizzardo, Ezio; Cacioli, Paul

PATENT ASSIGNEE(S): Commonwealth Scientific and Industrial Research Organization, Australia

SOURCE: Eur. Pat. Appl., 63 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 135280	A2	19850327	EP 1984-304756	19840711

EP 135280	A3	19860813		
EP 135280	B1	19930512		
R: BE, CH, DE, FR, GB, IT, LI, NL				
AU 8430378	A	19850117	AU 1984-30378	19830711
AU 571240	B2	19880414		
JP 60089452	A	19850520	JP 1984-144097	19840711
JP 05006537	B	19930126		
US 4581429	A	19860408	US 1984-629929	19840711
PRIORITY APPLN. INFO.:			AU 1983-223	A 19830711
			AU 1983-224	A 19830711
			AU 1983-225	A 19830711
			AU 1984-3578	A 19840210

OTHER SOURCE(S): MARPAT 102:221335

ED Entered STN: 29 Jun 1985

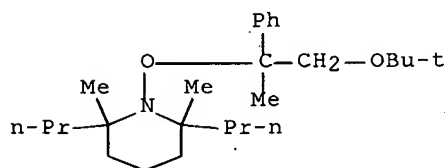
AB Fifteen compds. R1R2R3CN(OX)CR4R5R6 (X = a group having ≥ 1 C and is such that the free radical formed by cleavage of the O-X bond is capable of polymerizing unsatd. monomers; R1, R2, R5, and R6 = alkyl or substituted alkyl of sufficient length to provide steric hindrance; R3 and R4 = alkyl, substituted alkyl, or a group which completes a cyclic structure containing the N atom) are prepared and used as initiators for the polymerization, including block and graft polymerization, of unsatd. monomers. The initiators permit control of the growth steps of polymns. to produce oligomeric polymers. Thus, a solution of 400 mg di-tert-butyl nitroxide and 234 mg di-tert-Bu peroxyoxalate [1876-22-8] in 5 mL styrene [100-42-5] was heated 2 h at 50° to prepare N-(2-tert-butyl-1-phenylethoxy)-N,N-di-tert-butylamine (I) [96724-60-6]. A solution of 52 mg I in 3 mL Me acrylate was heated 0.5 h at 100° to prepare 0.42 g polymer Bu3OCH2CHPh[CH2CH(CO2Me)]25ON(CMe3)2.

IT 96724-56-0P

(preparation of, as radical polymerization catalyst)

RN 96724-56-0 HCAPLUS

CN Piperidine, 1-[2-(1,1-dimethylethoxy)-1-methyl-1-phenylethoxy]-2,6-dimethyl-2,6-dipropyl- (CA INDEX NAME)



IC ICM C08F004-00

ICS C08F291-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 27

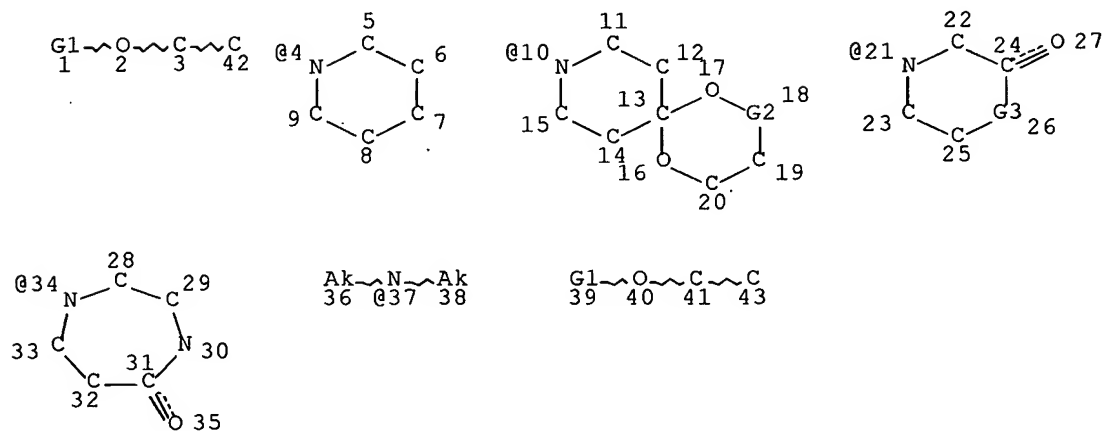
IT 96724-56-0P 96724-57-1P 96724-58-2P

96724-59-3P 96724-60-6P

(preparation of, as radical polymerization catalyst)

=> d que 169

L1 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US20050215691/PN
 L5 STR



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VAR G3=O/N

NODE ATTRIBUTES:

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NSPEC IS RC AT 43

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DEFAULT ECLEVEL IS LIMITED

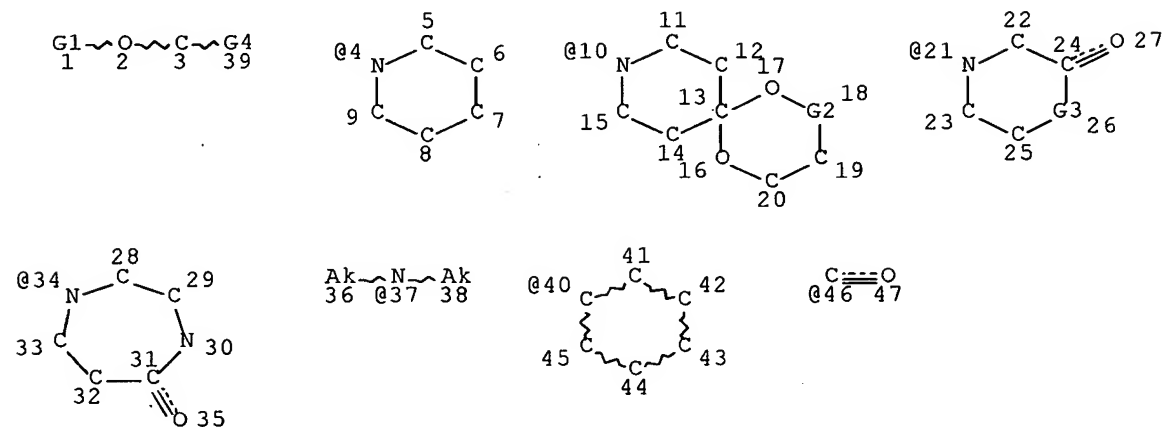
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NUMBER OF NODES IS 43

STEREO ATTRIBUTES: NONE

L9 STR



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REP G2=(0-1) CH2

VAR G3=O/N

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

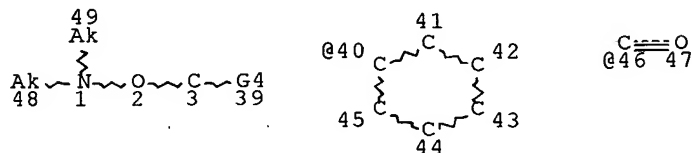
NUMBER OF NODES IS 47

STEREO ATTRIBUTES: NONE

L11 7221 SEA FILE=REGISTRY SSS FUL L9

L14 694 SEA FILE=REGISTRY SUB=L11 SSS FUL L5

L17 STR



VAR G4=46/40

NODE ATTRIBUTES:

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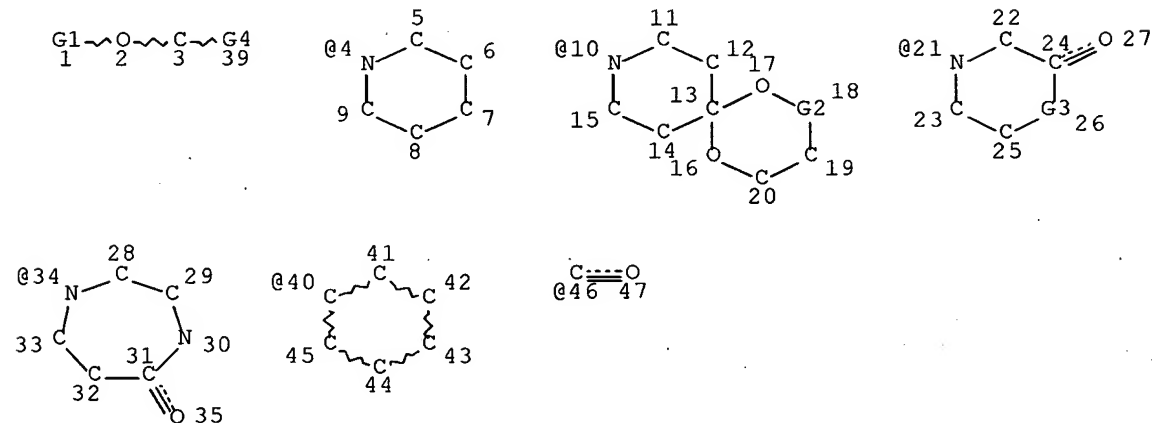
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NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE

L19 240 SEA FILE=REGISTRY SUB=L11 SSS FUL L17

L21 STR



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REP G2=(0-1) CH2

VAR G3=O/N

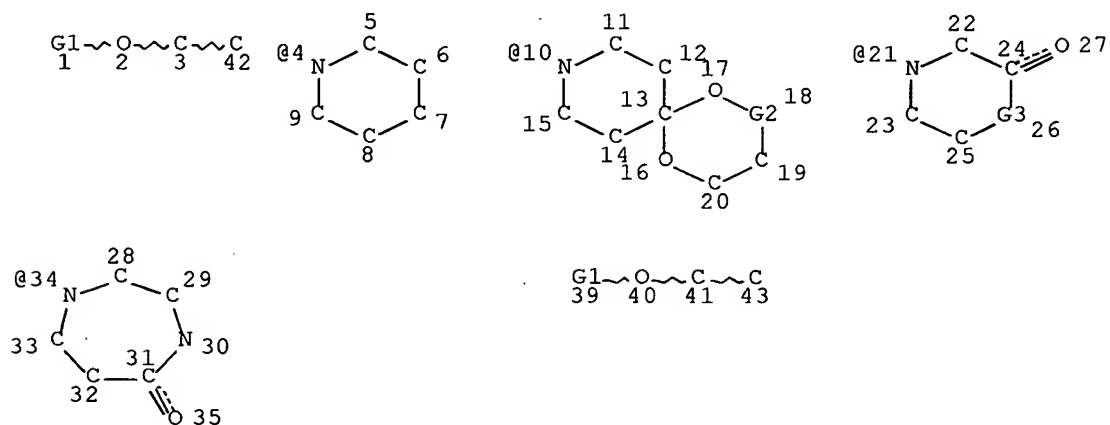
VAR G4=46/40

NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 44

STEREO ATTRIBUTES: NONE

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 L24 262 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L25 144 SEA FILE=HCAPLUS ABB=ON PLU=ON L19
 L29 209 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 (L) PREP/RL
 L32 74 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 AND (PLASTIC? OR
 POLYMER?)/SC, SX
 L33 60 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND (INITIAT? OR
 CATALYST? OR ACTIVAT?)
 L34 58 SEA FILE=HCAPLUS ABB=ON PLU=ON L33 NOT L19
 L35 STR



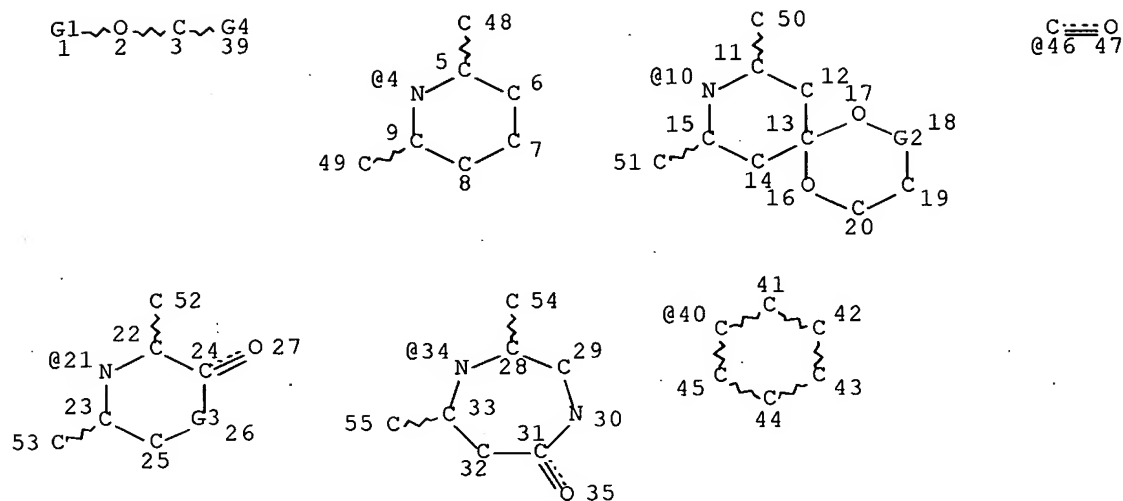
VAR G1=4/10/21/34
 REP G2=(0-1) CH2
 VAR G3=O/N

NODE ATTRIBUTES:
 NSPEC IS RC AT 42
 NSPEC IS RC AT 43
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 40

STEREO ATTRIBUTES: NONE

L37 198 SEA FILE=REGISTRY SUB=L14 SSS FUL L35
 L38 96 SEA FILE=HCAPLUS ABB=ON PLU=ON L37
 L39 40 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND L38
 L42 STR



VAR G1=4/10/21/34

REP G2=(0-1) CH2

VAR G3=O/N

VAR G4=46/40

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 52

STEREO ATTRIBUTES: NONE

L44	1677	SEA FILE=REGISTRY SUB=L23 SSS FUL L42
L45	614	SEA FILE=HCAPLUS ABB=ON PLU=ON L44
L46	399	SEA FILE=HCAPLUS ABB=ON PLU=ON L45 (L) PREP/RL
L47	271	SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND (PLASTIC? OR POLYMER?)/SC, SX
L48	208	SEA FILE=HCAPLUS ABB=ON PLU=ON L47 AND (INITIAT? OR CATALYST? OR ACTIVAT?)
L49	1	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L1
L50	2	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND CLAY?
L51	4	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND POF/RL
L52	174	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND CAT/RL
L53	6	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND MOA/RL
L54	15	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND (PEP OR PYP)/RL
L55	22	SEA FILE=HCAPLUS ABB=ON PLU=ON (L49 OR L50 OR L51) OR (L53 OR L54)
L56	13	SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND L46
L57	35	SEA FILE=HCAPLUS ABB=ON PLU=ON L55 OR L56
L58	6	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 AND ALKOXYAMINE INITIATOR?
L59	40	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 OR L58
L60	5	SEA FILE=HCAPLUS ABB=ON PLU=ON L57 AND ALKOXYAMINE INITIATOR?
L61	35	SEA FILE=HCAPLUS ABB=ON PLU=ON L57 OR L60
L62	26	SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND ALKOXYAMINE INITIATOR?
L63	26	SEA FILE=HCAPLUS ABB=ON PLU=ON L62 AND (PLASTIC? OR

POLYMER?)/SC, SX

L64 56 SEA FILE=HCAPLUS ABB=ON PLU=ON L61 OR L63
 L65 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L38 AND ALKOXYAMINE
 INITIATOR?
 L66 40 SEA FILE=HCAPLUS ABB=ON PLU=ON L59 OR L65
 L67 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L64 AND L66
 L69 30 SEA FILE=HCAPLUS ABB=ON PLU=ON L66 NOT L67

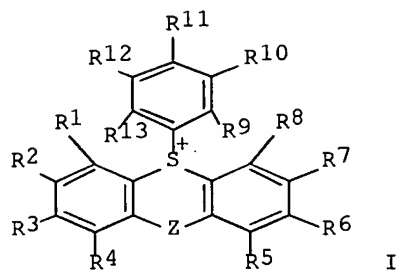
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 E257 THROUGH E342 ASSIGNED

=> d 169 1-30 ibib ed abs hitstr hitind

L69 ANSWER 1 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2007:379556 HCAPLUS Full-text
 DOCUMENT NUMBER: 146:411508
 TITLE: Positive-working resist composition containing
 cationic sulfonium salt and method of forming
 pattern
 INVENTOR(S): Hirano, Shuji; Kawanishi, Yasuhiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 57pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2007086516	A	20070405	JP 2005-276396	20050922
PRIORITY APPLN. INFO.:			JP 2005-276396	20050922

OTHER SOURCE(S): MARPAT 146:411508
 ED Entered STN: 05 Apr 2007
 GI



AB Disclosed is a pos.-working resist composition comprising (a) a polymer with ≥ 3 polymer chains via ≥ 1 branch whose solubility increases upon interaction with an acid and (b) a cationic sulfonium salt represented by I ($R1-13 = H$, substituent; and $Z =$ single or divalent bonding group). The use of the cationic sulfonium salt improved line edge roughness when an electron beam was employed.

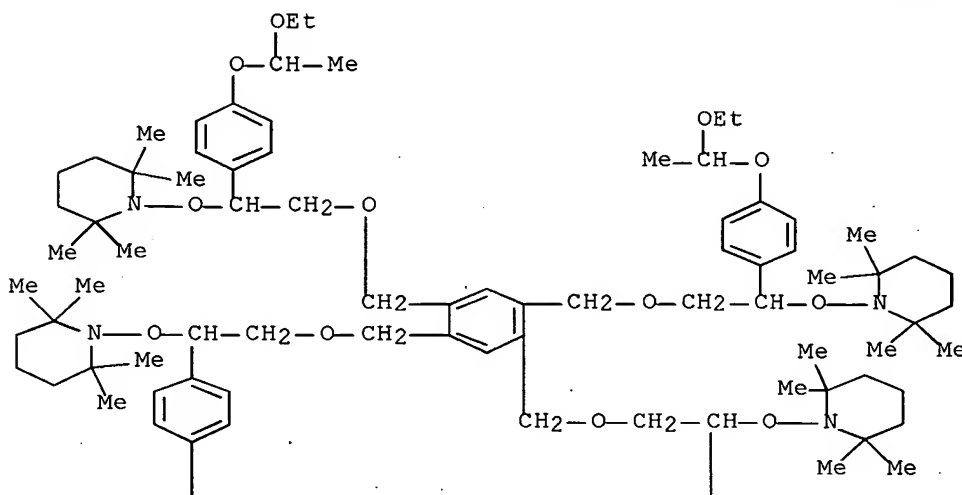
IT 933054-46-7P

(preparation of polymer for pos.-working resist composition)

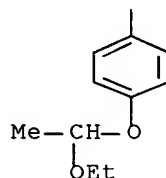
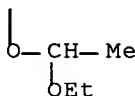
RN 933054-46-7 HCAPLUS

CN Piperidine, 1,1',1'',1'''-[1,2,4,5-benzenetetrayltetrakis[methyleneoxy
[1-[(1-ethoxyethoxy)phenyl]-2,1-ethanediyl]oxy]]tetrakis[2,2,6,6-
tetramethyl- (CA INDEX NAME)

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CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 35, 38, 76

IT Polymerization **catalysts**

(preparation of polymer for pos.-working resist composition)

IT 933054-46-7P

(preparation of polymer for pos.-working resist composition)

L69 ANSWER 2 OF 30 HCAPLUS. COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1063135 HCAPLUS Full-text

DOCUMENT NUMBER: 145:419613

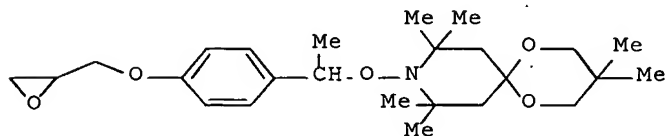
TITLE: Process for the preparation of star polymers via
epoxy-functionalized alkoxyamines

INVENTOR(S): Fink, Jochen; Pfaendner, Rudolf; Kramer, Andreas;
Fuso, Francesco

PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
 SOURCE: PCT Int. Appl., 23pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006106048	A1	20061012	WO 2006-EP61045	20060327
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CA 2601693	A1	20061012	CA 2006-2601693	20060327
EP 1866343	A1	20071219	EP 2006-725315	20060327
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR				
PRIORITY APPLN. INFO.:			EP 2005-102621	A 20050404
			WO 2006-EP61045	W 20060327

ED Entered STN: 12 Oct 2006
 GI



AB A process for the preparation of star polymers, which are prepared by controlled free radical polymerization using epoxy-functionalized alkoxyamines and multifunctional compds. capable of reacting with the epoxy group. Thus, reaction of 0.01269 mol epoxy alkoxyamine I 9 h at 90° with 0.00423 mol tris(aminomethyl)amine in PhMe and polymerization of 90 g styrene 6 h at 130° in the presence of 2.5 g resulting multifunctional **initiator** gave star polymer.

IT 912266-01-4P

(**initiator**; preparation of star polymers via **initiators** based on adducts of epoxy-functionalized alkoxyamines)

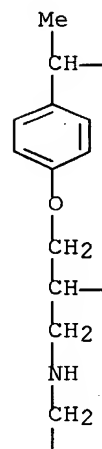
RN 912266-01-4 HCAPLUS

CN 2-Propanol, 1,1',1''-[nitrilotris(2,1-ethanediyylimino)]tris[3-[4-[1-

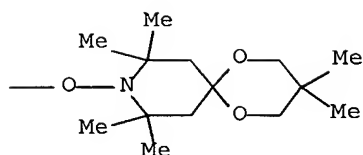
10/519,030

[(3,3,8,8,10,10-hexamethyl-1,5-dioxaspiro[5.5]undec-9-yl)oxy]ethyl]phenoxy]- (9CI) (CA INDEX NAME)

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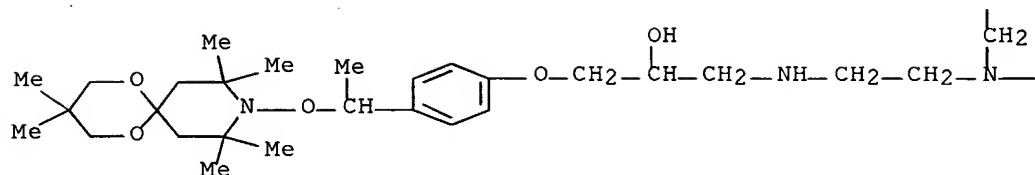


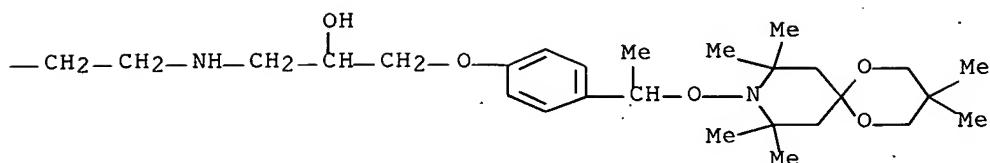
PAGE 1-B



— OH

PAGE 2-A





- CC 35-3 (Chemistry of Synthetic High **Polymers**)
- ST star shaped vinyl polymer epoxy alkoxyamine adduct **initiator**
; trisaminomethylamine glycidyloxyphenylethoxyhexa
methyldioxyazaspirodecyloxy adduct **initiator** styrene
polymn; controlled free radical polymn **initiator** vinyl compd
- IT Adhesives
(preparation of star polymers via **initiators** based on adducts
of epoxy-functionalized alkoxyamines for adhesives)
- IT Crosslinking agents
(preparation of star polymers via **initiators** based on adducts
of epoxy-functionalized alkoxyamines for crosslinkers)
- IT Emulsifying agents
(preparation of star polymers via **initiators** based on adducts
of epoxy-functionalized alkoxyamines for emulsifiers)
- IT Ionomers
(preparation of star polymers via **initiators** based on adducts
of epoxy-functionalized alkoxyamines for ionomers)
- IT Polymer blend compatibilizers
(preparation of star polymers via **initiators** based on adducts
of epoxy-functionalized alkoxyamines for polymer blend
compatibilizers)
- IT Surfactants
(preparation of star polymers via **initiators** based on adducts
of epoxy-functionalized alkoxyamines for surfactants)
- IT Polymerization
(radical, controlled; preparation of star polymers via
initiators based on adducts of epoxy-functionalized
alkoxyamines)
- IT 4097-89-6, Tris(2-aminoethyl)amine 434898-80-3
(**initiator** precursor; preparation of star polymers via
initiators based on adducts of epoxy-functionalized
alkoxyamines)
- IT 912266-01-4P
(**initiator**; preparation of star polymers via
initiators based on adducts of epoxy-functionalized
alkoxyamines)
- IT 9003-53-6P, Polystyrene
(star; preparation of star polymers via **initiators** based on
adducts of epoxy-functionalized alkoxyamines)
- REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L69 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:146521 HCAPLUS Full-text
DOCUMENT NUMBER: 144:351070
TITLE: Photoresponsive poly(methyl methacrylate)2-
(polystyrene)2 miktoarm star copolymer containing

AUTHOR(S): an azobenzene moiety at the core
Erdogan, Tuba; Gungor, Eda; Durmaz, Hakan; Hizal, Gurkan; Tunca, Umit

CORPORATE SOURCE: Department of Chemistry, Istanbul Technical University, Maslak, 34469, Turk.

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2006), 44(4), 1396-1403
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 16 Feb 2006

AB We prepared a novel miktoarm star copolymer with an azobenzene unit at the core via combination of atom transfer radical polymerization (ATRP) and nitroxide-mediated free radical polymerization (NMP) routes. For this purpose, first, mikto-functional **initiator**, 3, with tertiary bromide (for ATRP) and 2,2,6,6-tetramethylpiperidin-1-yloxy (TEMPO) (for NMP) functionalities and an azobenzene moiety at the core was synthesized. The **initiator** 3 thus obtained was used in the subsequent living radical polymerization routes such as ATRP of MMA and NMP of St, resp., to give A2B2 type miktoarm star copolymer, (PMMA)₂-(PSt)₂ with an azobenzene unit at the core with controlled mol. weight and low polydispersity ($M_w/M_n < 1.15$). The photoresponsive properties of 3 and (PMMA)₂-(PSt)₂ miktoarm star copolymer were investigated.

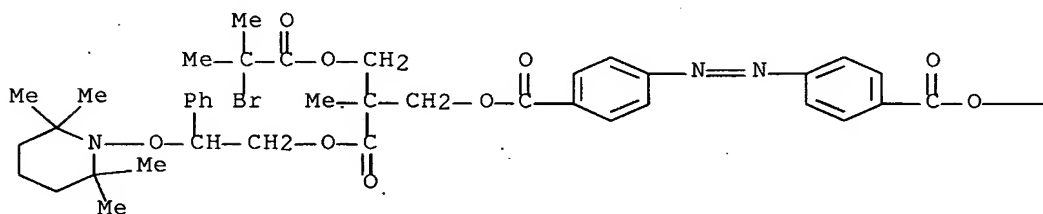
IT 881388-21-2P

(**initiator**; photoresponsive poly(Me methacrylate)₂-(polystyrene)₂ miktoarm star copolymer containing an azobenzene moiety at core)

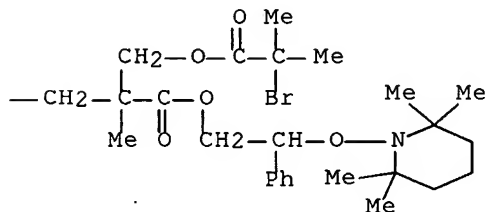
RN 881388-21-2 HCAPLUS

CN Benzoic acid, 4,4'-azobis-, bis[2-[(2-bromo-2-methyl-1-oxopropoxy)methyl]-2-methyl-3-oxo-3-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethoxy]propyl] ester (9CI) (CA INDEX NAME)

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IT 881388-22-3P

(macroinitiator; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

RN 881388-22-3 HCAPLUS

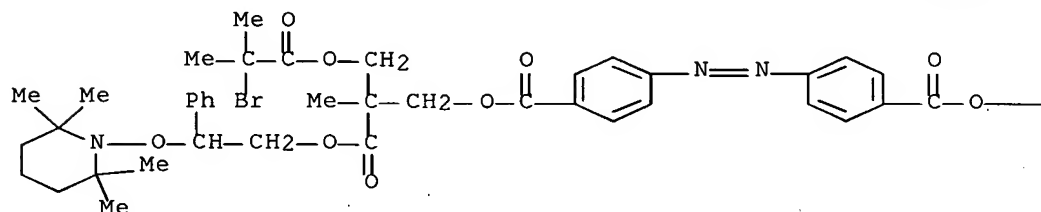
CN Benzoic acid, 4,4'-azobis-, bis[2-[(2-bromo-2-methyl-1-oxopropoxy)methyl]-2-methyl-3-oxo-3-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethoxy]propyl] ester, telomer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

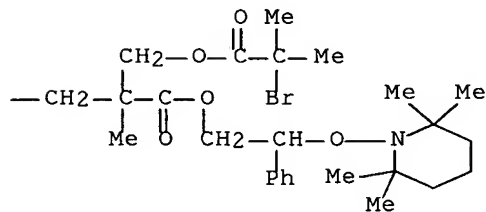
CRN 881388-21-2

CMF C66 H86 Br2 N4 O14

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CM 2

CRN 9011-14-7

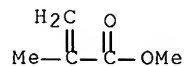
CMF (C5 H8 O2) x

CCI PMS

CM 3

CRN 80-62-6

CMF C5 H8 O2



IT 881388-23-4P

(star polymer; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

RN 881388-23-4 HCAPLUS

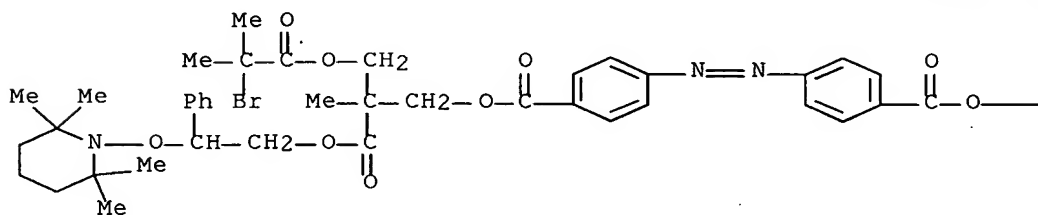
CN Benzoic acid, 4,4'-azobis-, bis[2-[(2-bromo-2-methyl-1-oxopropoxy)methyl]-2-methyl-3-oxo-3-[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethoxy]propyl] ester, telomer with ethenylbenzene and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

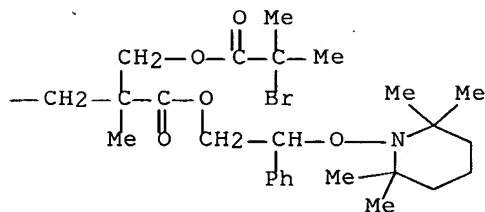
CRN 881388-21-2

CMF C66 H86 Br2 N4 O14

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CM 2

CRN 25034-86-0

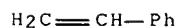
CMF (C8 H8 . C5 H8 O2)x

CCI PMS

CM 3

CRN 100-42-5

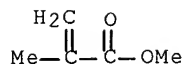
CMF C8 H8



CM 4

CRN 80-62-6

CMF C5 H8 O2

CC 35-4 (Chemistry of Synthetic High **Polymers**)

IT Polymerization

Polymerization **catalysts**

(atom transfer, living, radical; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

IT **881388-21-2P**

(**initiator**; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

IT **881388-22-3P**

(macroinitiator; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

IT 3030-47-5, Pentamethyldiethylenetriamine

(polymerization **catalyst** ligand; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

IT 7758-89-6, Copper (I) chloride

(polymerization **catalyst**; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

IT 10252-29-6, 4,4'-Bis(chlorocarbonyl)azobenzene 778603-97-7

(reactant in **initiator** preparation; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

IT **881388-23-4P**

(star polymer; photoresponsive poly(Me methacrylate)2-(polystyrene)2 miktoarm star copolymer containing an azobenzene moiety at core)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:41766 HCAPLUS Full-text

DOCUMENT NUMBER: 144:293151

TITLE: Syntheses of AB2 3- and AB4 5-miktoarm star copolymers by combination of the anionic ring-opening polymerization of hexamethylcyclotrisiloxane and nitroxide-mediated radical polymerization of styrene

AUTHOR(S): Miura, Yozo; Yamaoka, Keisuke; Mannan, Md. Abdul

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka City University, Osaka, 558-8585, Japan

SOURCE: Polymer (2006), 47(2), 510-519
 CODEN: POLMAG; ISSN: 0032-3861
 PUBLISHER: Elsevier Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 17 Jan 2006

AB AB2 3- and AB4 5-microarm star copolymers were prepared by combination of the anionic ring-opening polymerization (AROP) of hexamethylcyclotrisiloxane (D3) and the TEMPO-mediated radical polymerization of styrene (St). Initially, two kinds of dendritic multifunctional **initiators** were prepared. One has a 4-bromobutoxy group and two TEMPO-based alkoxyamines and the other has a 4-bromobutoxy group and four TEMPO-based alkoxyamines. Treatment of the multifunctional **initiators** with tert-butyllithium gave the corresponding lithiobutoxy derivs., and AROP of D3 by the lithiobutoxy derivs. gave poly(D3) with M w/Mn of 1.07-1.12. Nitroxide-mediated radical polymerization of St by the poly(D3)s at 120 °C gave AB2 3- and AB4 5-arm star copolymers with Mw/Mn of 1.15-1.28. Their structures were analyzed by means of 1H NMR and SEC measurements.

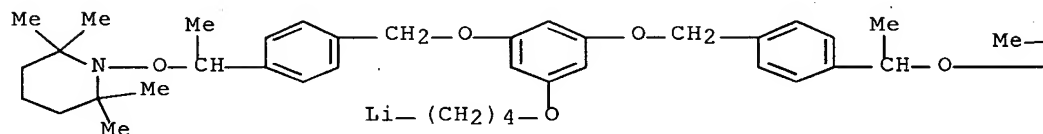
IT 878806-51-0P 878806-53-2P

(syntheses of star copolymers by combination of anionic ring-opening polymerization of hexamethylcyclotrisiloxane and nitroxide-mediated radical polymerization of styrene)

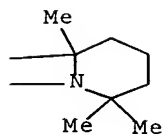
RN 878806-51-0 HCAPLUS

CN Lithium, [4-[3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyloxy]ethyl]phenyl]methoxy]phenoxy]butyl]- (CA INDEX NAME)

PAGE 1-A

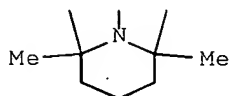
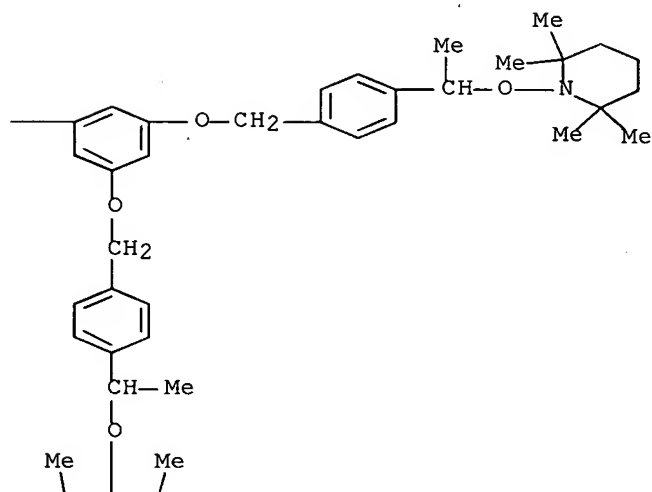
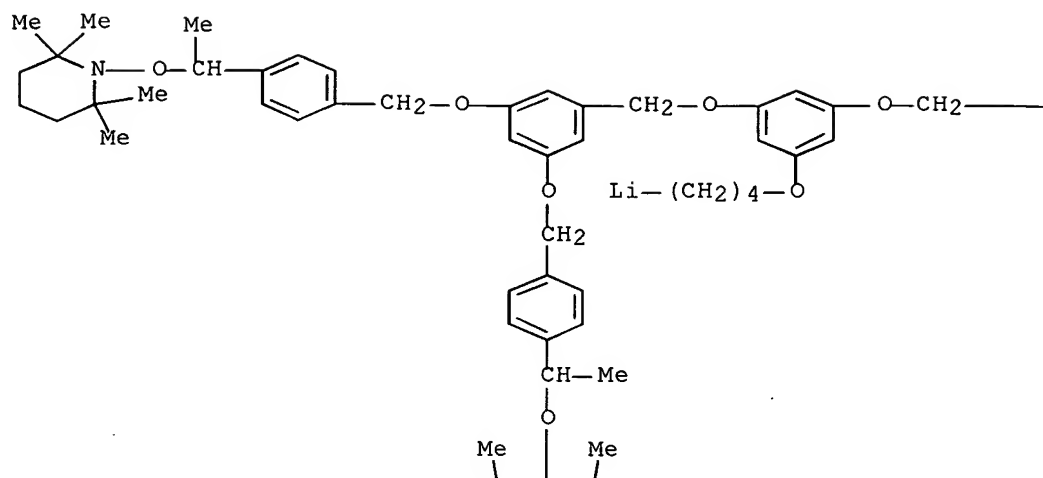


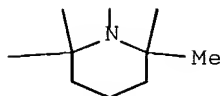
PAGE 1-B



RN 878806-53-2 HCAPLUS

CN Lithium, [4-[3,5-bis[[3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyloxy]ethyl]phenyl]methoxy]phenyl]methoxy]phenoxy]butyl]- (CA INDEX NAME)





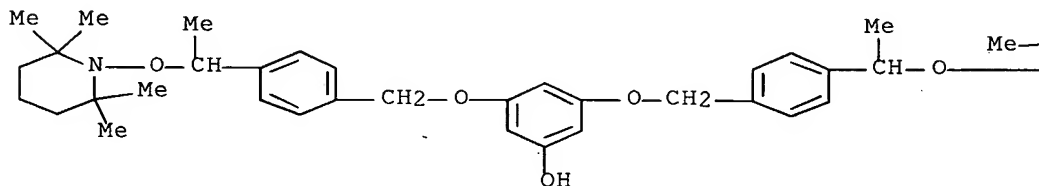
IT 878806-48-5P 878806-49-6P 878806-50-9P
878806-52-1P

(syntheses of star copolymers by combination of anionic ring-opening polymerization of hexamethylcyclotrisiloxane and nitroxide-mediated radical polymerization of styrene)

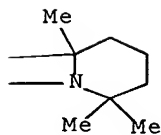
RN 878806-48-5 HCAPLUS

CN Phenol, 3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl]methoxy]- (CA INDEX NAME)

PAGE 1-A

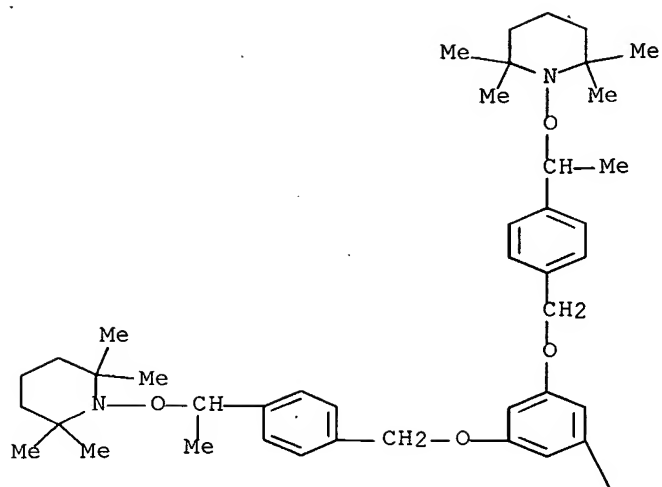


PAGE 1-B

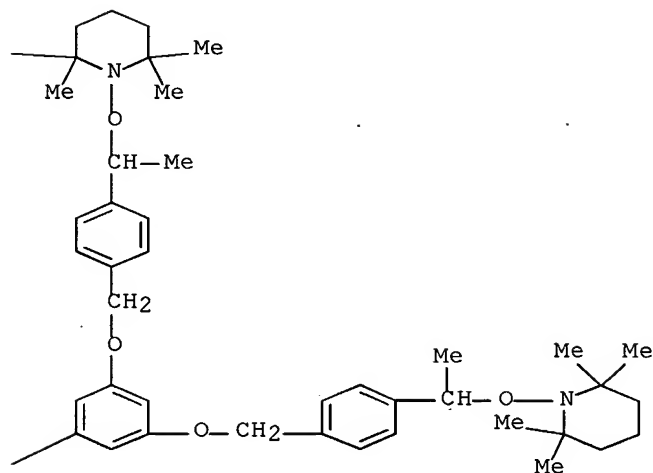


RN 878806-49-6 HCAPLUS

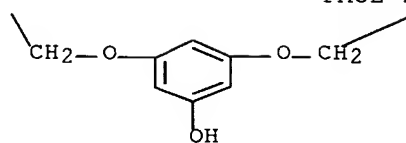
CN Phenol, 3,5-bis[[3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl]methoxy]phenyl]methoxy]- (CA INDEX NAME)



PAGE 1-B

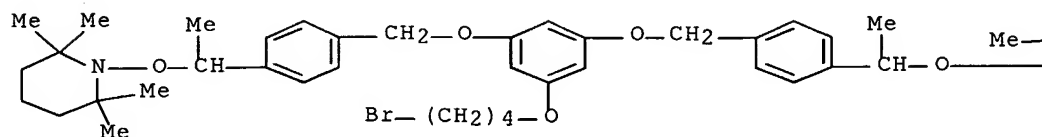


PAGE 2-A

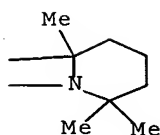


CN Piperidine, 1,1'-[[5-(4-bromobutoxy)-1,3-phenylene]bis(oxymethylene-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



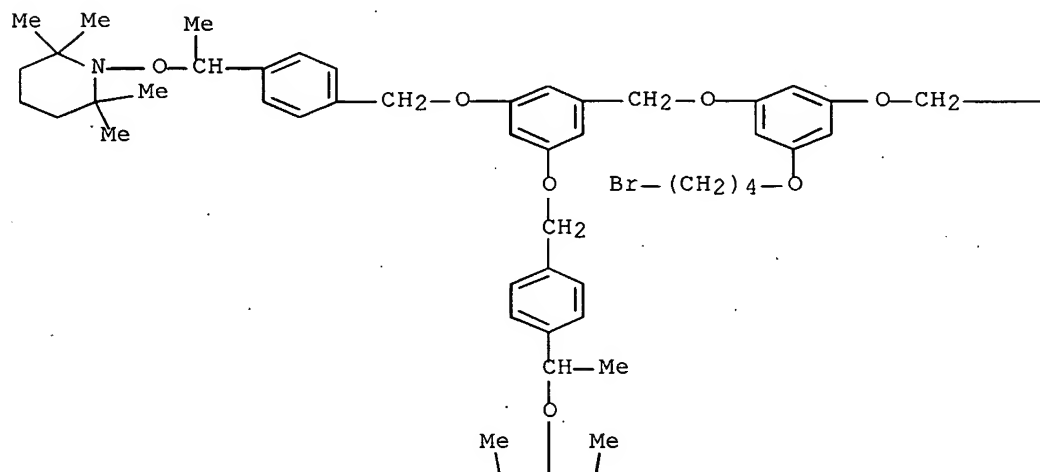
PAGE 1-B



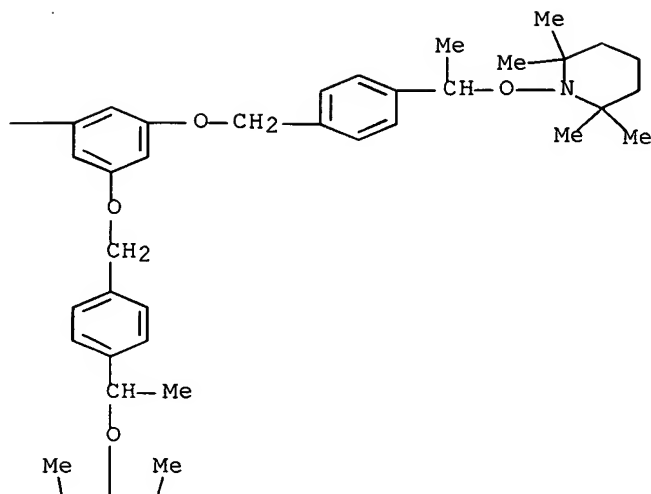
RN 878806-52-1 HCAPLUS

CN Piperidine, 1,1',1'',1'''-[[5-(4-bromobutoxy)-1,3-phenylene]bis[oxymethylene-5,1,3-benzenetriylbis(oxymethylene-4,1-phenyleneethylideneoxy)]]tetrakis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

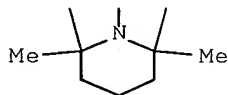
PAGE 1-A



PAGE 1-B

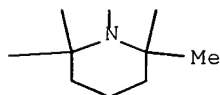


PAGE 2-A



Me—

PAGE 2-B



- CC 35-4 (Chemistry of Synthetic High **Polymers**)
- ST hexamethylcyclotrisiloxane styrene star copolymer prepn ring opening
polymn; nitroxide mediated radical polymn styrene star copolymer;
dendrimer **initiator** prepn ring opening
- IT Polymerization
Polymerization **catalysts**
(anionic, ring-opening; syntheses of star copolymers by combination
of anionic ring-opening polymerization of hexamethylcyclotrisiloxane and
nitroxide-mediated radical polymerization of styrene)
- IT Polymerization
Polymerization **catalysts**
(radical; syntheses of star copolymers by combination of anionic
ring-opening polymerization of hexamethylcyclotrisiloxane and
nitroxide-mediated radical polymerization of styrene)
- IT **878806-51-0P 878806-53-2P**
(syntheses of star copolymers by combination of anionic
ring-opening polymerization of hexamethylcyclotrisiloxane and

nitroxide-mediated radical polymerization of styrene)
 IT 878806-48-5P 878806-49-6P 878806-50-9P
 878806-52-1P

(syntheses of star copolymers by combination of anionic
 ring-opening polymerization of hexamethylcyclotrisiloxane and
 nitroxide-mediated radical polymerization of styrene)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:574020 HCAPLUS Full-text

DOCUMENT NUMBER: 144:254458

TITLE: Synthesis of A3B3-type polystyrene-poly(methyl
 methacrylate) miktoarm star polymers via
 combination of stable free radical and atom
 transfer radical polymerization routes

AUTHOR(S): Durmaz, Hakan; Aras, Sermin; Hizal, Gurkan; Tunca,
 Umit

CORPORATE SOURCE: Department of Chemistry, Istanbul Technical
 University, Istanbul, 34469, Turk.

SOURCE: Designed Monomers and Polymers (2005), 8(3),
 203-210

CODEN: DMPOF3; ISSN: 1385-772X

PUBLISHER: VSP

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 04 Jul 2005

AB An A3B3-type miktoarm star polymer was prepared utilizing a "core-out" method
 via combination of stable free radical polymerization (SFRP) and atom transfer
 radical polymerization (ATRP). First, SFRP of styrene was carried out by
 using a miktofunctional **initiator**, benzene-1,3,5-tricarboxylic acid tris(3-(2-
 bromo-2-methyl-propionyloxy)-2-methyl-2-[2-phenyl-2-(2,2,6,6-
 tetramethylpiperidin-1-yl)ethoxy-carbonyl]propyl) ester, at 125°C.
 Second, previously obtained polystyrene (A3-type PSt) precursor with three
 bromine functionalities in the core was used as a macroinitiator for ATRP of
 Me methacrylate (MMA) in the presence of Cu(I)Cl and
 pentamethyldiethylenetriamine at 90°C in order to give an A3B3-type miktoarm
 star polymer, (PSt)3(-PMMA)3, with controlled mol. weight and moderate
 polydispersity ($M_w/M_n < 1.41$).

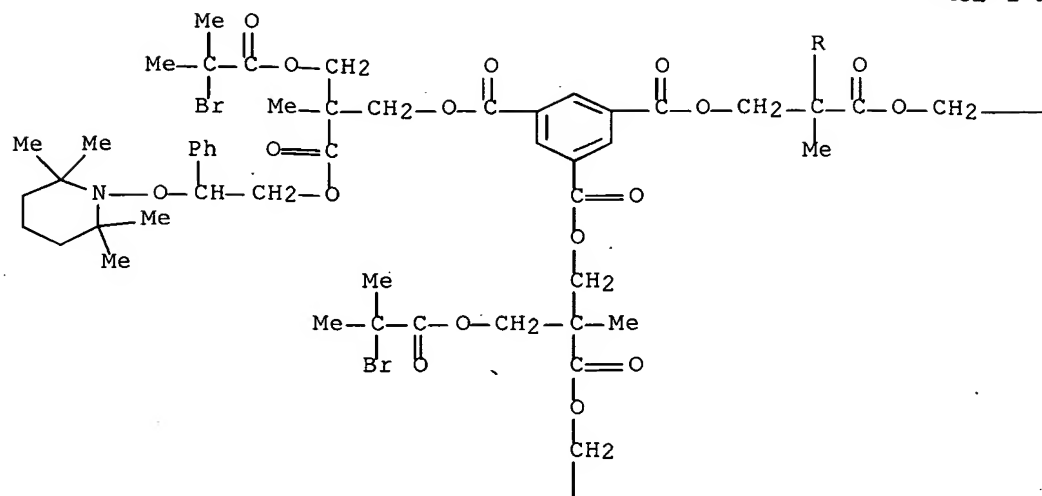
IT 876931-41-8P

(core and multifunctional **initiator**; synthesis of
 A3B3-type polystyrene-poly(Me methacrylate) miktoarm star polymers
 via combination of stable free radical and atom transfer radical
 polymerization routes)

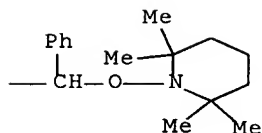
RN 876931-41-8 HCAPLUS

CN 1,3,5-Benzenetricarboxylic acid, tris[2-[(2-bromo-2-methyl-1-
 oxopropoxy)methyl]-2-methyl-3-oxo-3-[2-phenyl-2-[(2,2,6,6-tetramethyl-
 1-piperidinyloxy)ethoxy]propyl] ester (9CI) (CA INDEX NAME)

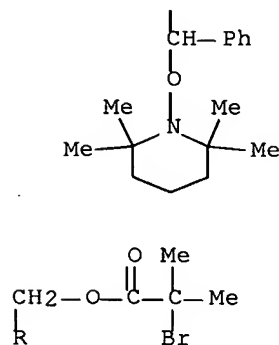
PAGE 1-A



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PAGE 2-A



- CC 35-4 (Chemistry of Synthetic High **Polymers**)
 IT Polymerization **catalysts**
 (radical; synthesis of A3B3-type polystyrene-poly(Me methacrylate)
 miktoarm star polymers via combination of stable free radical and
 atom transfer radical polymerization routes)
 IT **876931-41-8P**
 (core and multifunctional **initiator**; synthesis of

A3B3-type polystyrene-poly(Me methacrylate) miktoarm star polymers via combination of stable free radical and atom transfer radical polymerization routes)

IT 9003-53-6P, Polystyrene
(three-arms star, multifunctional **initiator**; synthesis of A3B3-type polystyrene-poly(Me methacrylate) miktoarm star polymers via combination of stable free radical and atom transfer radical polymerization routes)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:217463 HCAPLUS Full-text

DOCUMENT NUMBER: 142:411785

TITLE: Synthesis of AB2 3- and AB4 5-miktoarm star copolymers **initiated** from dendritic tri- and penta-functional **initiators** by combination of ring-opening polymerization of ϵ -caprolactone and nitroxide-mediated radical polymerization of styrene

AUTHOR(S): Miura, Yozo; Sakai, Yumi; Yamaoka, Keisuke
CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka City University, Osaka, 558-8585, Japan

SOURCE: Macromolecular Chemistry and Physics (2005), 206(4), 504-512

CODEN: MCHPES; ISSN: 1022-1352

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 11 Mar 2005

AB Well-defined AB2 3- and AB4 5-miktoarm star copolymers were prepared by combination of ring-opening polymerization (ROP) and nitroxide-mediated radical polymerization (NMRP) using dendritic tri- and penta-functional **initiators**. Initially, two kinds of dendritic **initiators** having one benzylic OH and two or four TEMPO-based alkoxyamine moieties were prepared. Using them, ROP of ϵ -caprolactone was carried out at room temperature to give poly-(ϵ -caprolactone)s carrying two or four alkoxyamine moieties. NMRP of styrene from the poly(ϵ -caprolactone)s was carried out at 120°C to give AB2 3- and AB4 5-miktoarm star copolymers, which were analyzed by ¹H NMR and SEC. The M_ns increased linearly with conversion and the M_w/M_ns were in the range 1.10-1.37, showing that well-defined AB2 3- and AB4 5-miktoarm star copolymers were formed.

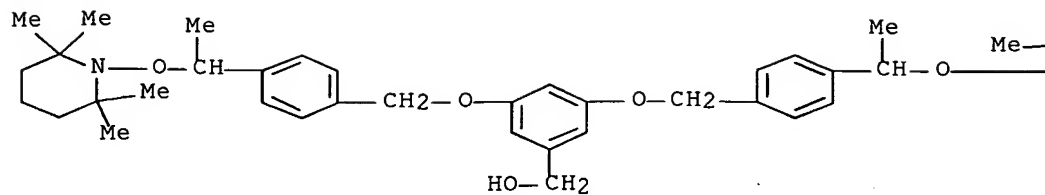
IT 492446-77-2

(preparation of dendritic penta-functional **initiators** for synthesis of AB4 5-miktoarm star copolymers)

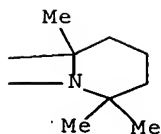
RN 492446-77-2 HCAPLUS

CN Benzenemethanol, 3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl]phenyl]methoxy]- (CA INDEX NAME)

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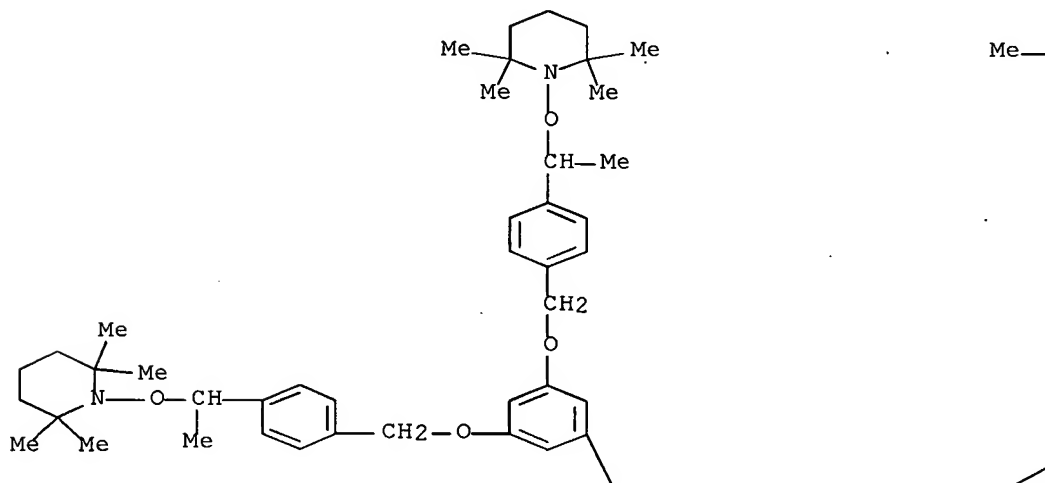
IT 850538-80-6P

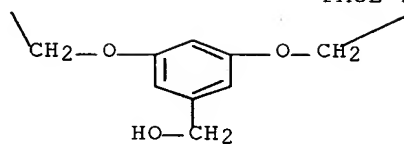
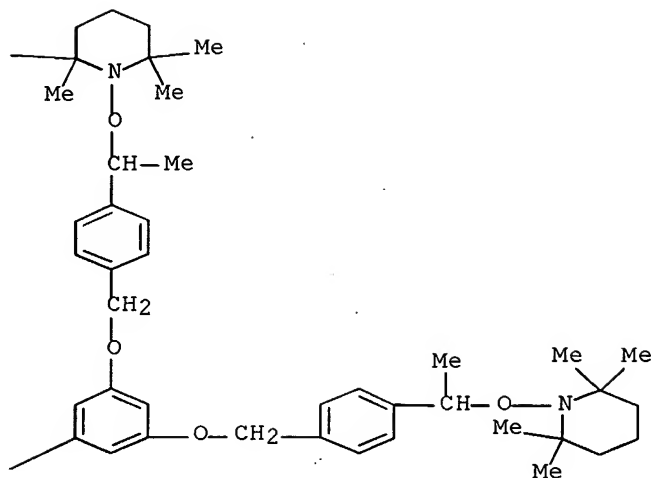
(preparation of dendritic penta-functional **initiators** for
synthesis of AB4 5-miktoarm star copolymers)

RN 850538-80-6 HCAPLUS

CN Benzenemethanol, 3,5-bis[[3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-
piperidinyloxy]ethyl]phenyl]methoxy]phenyl]methoxy]- (CA INDEX NAME)

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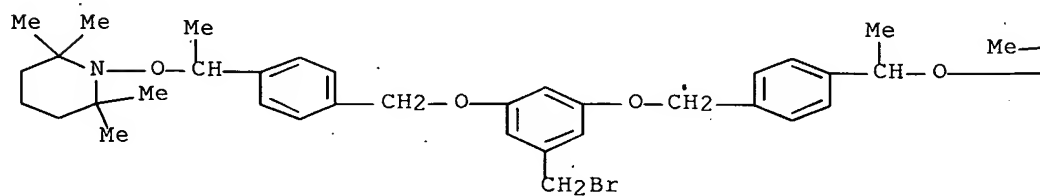


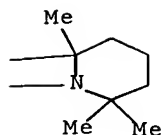
IT 492446-78-3

(preparation of dendritic penta-functional **initiators** for synthesis of AB₄ 5-miktoarm star copolymers)

RN 492446-78-3 HCAPLUS

CN Piperidine, 1,1'-[[5-(bromomethyl)-1,3-phenylene]bis(oxyethylene-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)





CC 35-7 (Chemistry of Synthetic High **Polymers**)

IT Polyesters, preparation
(lactone-based; synthesis of AB2 3- and AB4 5-miktoarm star copolymers **initiated** from dendritic tri- and penta-functional **initiators**)

IT Polymerization **catalysts**
(radical; synthesis of AB2 3- and AB4 5-miktoarm star copolymers **initiated** from dendritic tri- and penta-functional **initiators**)

IT Polymers, preparation
(star-branched; synthesis of AB2 3- and AB4 5-miktoarm star copolymers **initiated** from dendritic tri- and penta-functional **initiators**)

IT 209550-24-3 **492446-77-2**
(preparation of dendritic penta-functional **initiators** for synthesis of AB4 5-miktoarm star copolymers)

IT **850538-80-6P**
(preparation of dendritic penta-functional **initiators** for synthesis of AB4 5-miktoarm star copolymers)

IT 29654-55-5, 3,5-Dihydroxybenzyl alcohol **492446-78-3**
(preparation of dendritic penta-functional **initiators** for synthesis of AB4 5-miktoarm star copolymers)

IT 24980-41-4P, ϵ -Caprolactone homopolymer 25248-42-4P,
 ϵ -Caprolactone homopolymer, sru 29010-44-4P,
 ϵ -Caprolactone-styrene copolymer
(synthesis of AB2 3- and AB4 5-miktoarm star copolymers **initiated** from dendritic tri- and penta-functional **initiators**)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:15040 HCAPLUS Full-text

DOCUMENT NUMBER: 142:261830

TITLE: Multi-armed, TEMPO-functionalized unimolecular **initiators** for starburst dendrimer synthesis via stable free radical polymerization. 2. Tris (1,3,5)benzyloxy unimers

AUTHOR(S): Ghani, Mohamad Asri Abd; Abdallah, Dalia; Kazmaier, Peter M.; Keoshkerian, Barkev; Buncel, Erwin

CORPORATE SOURCE: Department of Chemistry, Queen's University, Kingston, ON, K7L 3N6, Can.

SOURCE: Canadian Journal of Chemistry (2004), 82(9), 1403-1412
CODEN: CJCHAG; ISSN: 0008-4042

PUBLISHER: National Research Council of Canada

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:261830

ED Entered STN: 07 Jan 2005

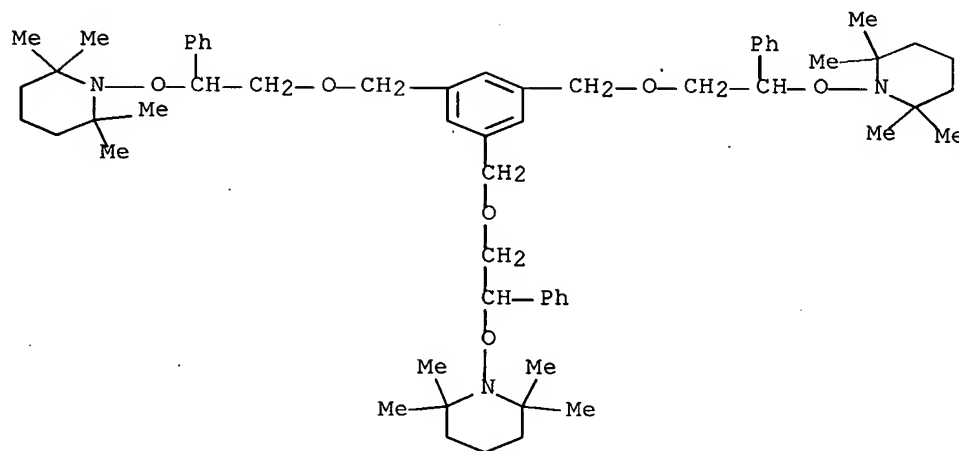
AB The synthesis of the trifunctionalized TEMPO-modified unimol. **initiators**, unimers I, II, and III is described. Unimer I was prepared via an SN2 type Williamson ether coupling of 1,3,5-tris(iodomethyl)benzene with a TEMPO-containing ethylbenzene hydroxy derivative. The synthesis of unimer II, however, was accomplished through SN1 reaction of 1,3,5-tris(bromomethyl)benzene with the hydroxy-ethylbenzene TEMPO derivative in the presence of silver triflate. Synthesis of unimer III started from phloroglucinol and an SNAr reaction with 1-fluoro-4-nitrobenzene, followed by reduction to the amino compound and Schiff base formation with the TEMPO-derivatized aromatic aldehyde. Stable free radical polymerization (SFRP) of styrene and acetoxystyrene with unimer I are also described with mol. wts. and polydispersities reported. It is concluded that the SFRP of styrene with a triradical **initiator** meets the requirements of a living system.

IT 372522-45-7P 845745-22-4P 845745-23-5P

(preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)

RN 372522-45-7 HCAPLUS

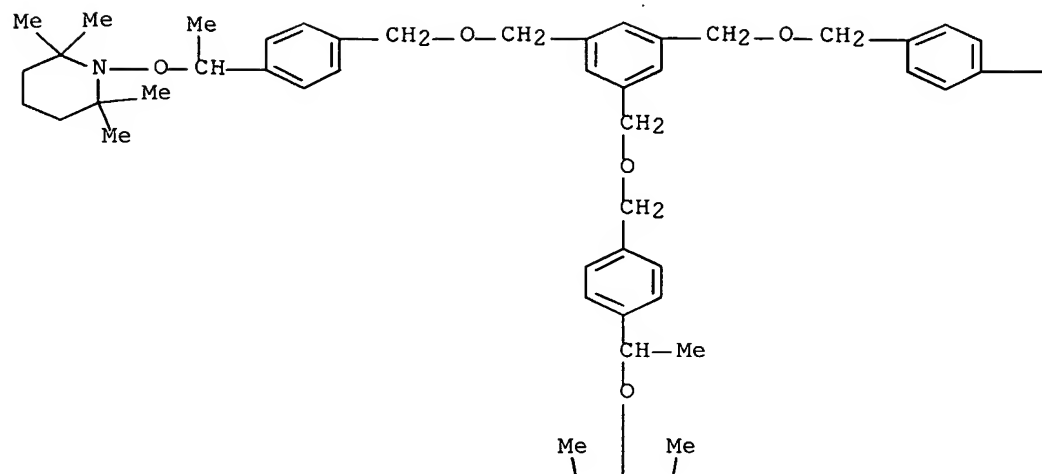
CN Piperidine, 1,1',1''-[1,3,5-benzenetriyltris(methyleneoxy(1-phenyl-2,1-ethanediyl)oxy)]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



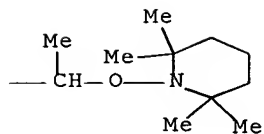
RN 845745-22-4 HCAPLUS

CN Piperidine, 1,1',1''-[1,3,5-benzenetriyltris(methyleneoxymethylene-4,1-phenyleneethylideneoxy)]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]

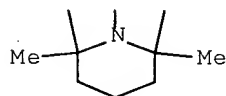
PAGE 1-A



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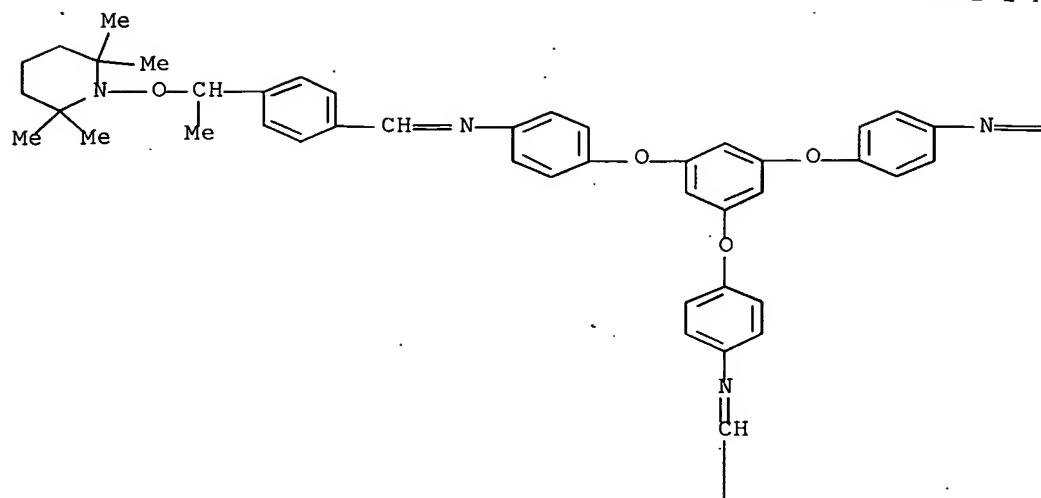


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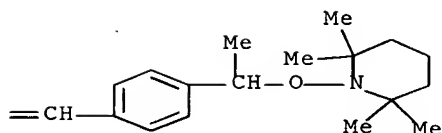


RN 845745-23-5 HCAPLUS
 CN Benzenamine, 4,4',4''-[1,3,5-benzenetriyltris(oxy)]tris[N-[[4-[1-
 [(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl]methylene]- (9CI)
 (CA INDEX NAME)

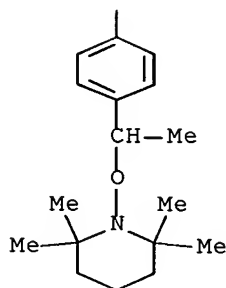
PAGE 1-A



PAGE 1-B



PAGE 2-A



- CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST styrene acetoxystyrene radical polymn **catalyst** multiarmed
 TEMPO functionalized trisbenzyloxyunimol
 IT Molecular weight
 Molecular weight distribution
 (preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol.
initiators for radical polymerization of styrene and
 acetoxystyrene)
 IT Polymerization **catalysts**

- (radical; preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)
- IT Polymers, preparation
(star-branched; preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)
- IT 9003-53-6P, Polystyrene 24979-78-0DP, Poly(p-acetoxystyrene), hydrolyzed 24979-78-0P, Poly(p-acetoxystyrene) 188203-34-1P, p-Acetoxystyrene-styrene block copolymer
(3-armed; preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)
- IT 209550-24-3P **372522-45-7P 845745-22-4P 845745-23-5P**
(preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)
- IT 94-36-0, BPO, reactions 100-41-4, Ethylbenzene, reactions 100-42-5, Styrene, reactions 108-73-6, 1,3,5-Trihydroxybenzene 350-46-9, 4-Fluoro-nitrobenzene 1074-61-9, 4-Vinylbenzyl alcohol 1876-22-8, Di-tert-butylperoxyoxalate 2564-83-2, TEMPO 18226-42-1, 1,3,5-Tris(bromomethyl)benzene 90678-60-7, 1,3,5-Tris(iodomethyl)benzene 102852-91-5 209550-23-2
(preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)
- IT 81913-53-3P 102852-92-6P 154554-67-3P 161776-41-6P
(preparation of multi-armed, TEMPO-functionalized trisbenzyloxyunimol. **initiators** for radical polymerization of styrene and acetoxystyrene)
- REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:15039 HCAPLUS Full-text

DOCUMENT NUMBER: 142:261829

TITLE: Multi-armed, TEMPO-functionalized unimolecular **initiators** for starburst dendrimer synthesis via stable free radical polymerization.
1. Tri azofunctionalized unimer

AUTHOR(S): Abdallah, Dalia; Ghani, Mohmad Asri Abd; Cunningham, Michael F.; Kazmaier, Peter M.; Keoshkerian, Barkev; Buncel, Erwin

CORPORATE SOURCE: Department of Chemistry, Queen's University, Kingston, ON, K7L 3N6, Can.

SOURCE: Canadian Journal of Chemistry (2004), 82(9), 1393-1402

CODEN: CJCHAG; ISSN: 0008-4042

PUBLISHER: National Research Council of Canada

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:261829

ED Entered STN: 07 Jan 2005

AB The synthesis of azobenzene-functionalized multi-armed unimol. **initiators** or "unimers" that can be polymerized using styrene or styrenic derivs. via TEMPO (2,2,6,6-tetramethylpiperidenyl-1-oxyl) mediated stable free radical polymerization (SFRP) is described. The unimers are composed of an azobenzene-functionalized core and a TEMPO-modified unit. Homopolymers and

copolymers of styrene and acetoxystyrene were synthesized using the mono- and trifunctionalized unimers as **initiators** under bulk conditions with average mol. wts. and polydispersities reported. The studies lay the groundwork for further investigations involving SFRP towards building a light harvesting system by introducing chromophores onto the polymer chains for capturing light and thence transferring it to the azobenzene core.

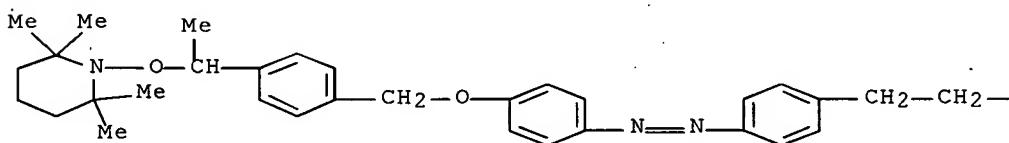
IT 845728-32-7P 845728-34-9P

(multi-armed, TEMPO-functionalized unimol. **initiators** for starburst dendrimer synthesis via stable radical polymerization)

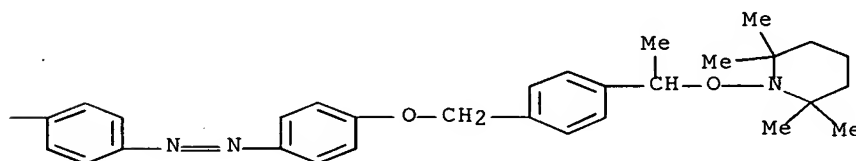
RN 845728-32-7 HCAPLUS

CN Piperidine, 1,1'-[1,2-ethanediylbis(4,1-phenyleneazo-4,1-phenyleneoxymethylene-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



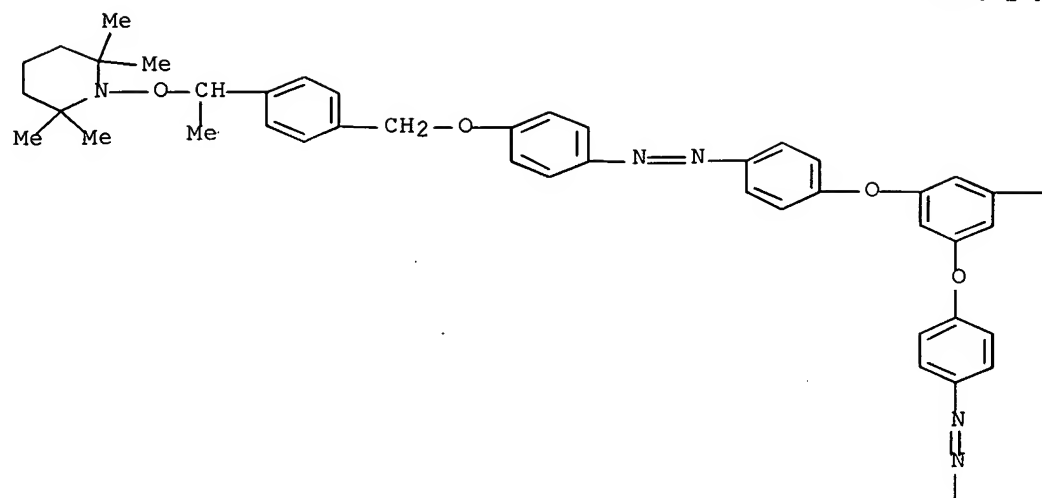
PAGE 1-B



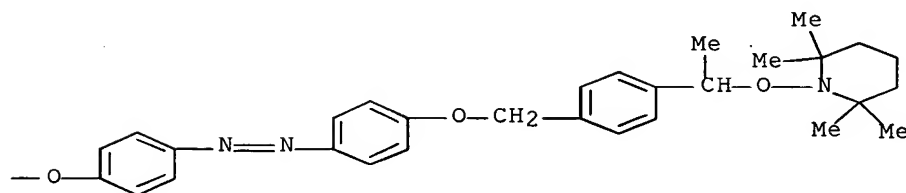
RN 845728-34-9 HCAPLUS

CN Piperidine, 1,1',1''-[1,3,5-benzenetriyltris(oxy-4,1-phenyleneazo-4,1-phenyleneoxymethylene-4,1-phenyleneethylideneoxy)]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]

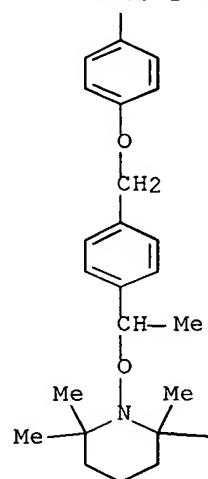
PAGE 1-A



PAGE 1-B



PAGE 2-A



— Me

- CC 35-3 (Chemistry of Synthetic High **Polymers**)
- ST triazofunctionalized unimer **initiator** radical polymn styrene
acetoxystyrene dendrimer synthesis; TEMPO modified styrene
acetoxystyrene copolymer polystyrene polyacetoxystyrene dendrimer
synthesis
- IT Molecular weight
Molecular weight distribution
(multi-armed, TEMPO-functionalized unimol. **initiators** for
starburst dendrimer synthesis via stable radical polymerization)
- IT Polymerization **catalysts**
(radical; multi-armed, TEMPO-functionalized unimol.
initiators for starburst dendrimer synthesis via stable
radical polymerization)
- IT Polymers, preparation
(star-branched; multi-armed, TEMPO-functionalized unimol.
initiators for starburst dendrimer synthesis via stable
radical polymerization)
- IT 24979-78-0P, Poly(p-acetoxystyrene) 188203-34-1P,
p-Acetoxystyrene-styrene block copolymer
(linear or 3-armed; multi-armed, TEMPO-functionalized unimol.
initiators for starburst dendrimer synthesis via stable
radical polymerization)
- IT 1876-22-8P, Di-tert-Butyl peroxyoxalate 845728-31-6P
845728-32-7P 845728-34-9P
(multi-armed, TEMPO-functionalized unimol. **initiators** for
starburst dendrimer synthesis via stable radical polymerization)
- IT 9003-53-6P, Polystyrene 24979-78-0DP, Poly(p-acetoxystyrene),
hydrolyzed 53746-03-5P, p-Acetoxystyrene-styrene copolymer
(multi-armed, TEMPO-functionalized unimol. **initiators** for
starburst dendrimer synthesis via stable radical polymerization)
- IT 75-91-2, tert-Butylhydroperoxide 79-37-8, Oxalyl chloride
108-73-6, 1,3,5-Benzenetriol 108-95-2, Phenol, reactions 350-46-9
621-95-4 1689-82-3 2564-83-2, TEMPO 4748-78-1 7632-00-0,
Sodium nitrite
(multi-armed, TEMPO-functionalized unimol. **initiators** for
starburst dendrimer synthesis via stable radical polymerization)
- IT 768-59-2P 57825-30-6P 90264-99-6P 102852-91-5P 102852-92-6P
492446-76-1P 845728-30-5P 845728-33-8P
(multi-armed, TEMPO-functionalized unimol. **initiators** for

starburst dendrimer synthesis via stable radical polymerization)
 IT 558-13-4
 (multi-armed, TEMPO-functionalized unimol. **initiators** for
 starburst dendrimer synthesis via stable radical polymerization)
 REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2004:76619 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:112181
 TITLE: Manufacture of polymers having dissociative
 electron attachment groups and scission of the
 polymer main chains
 INVENTOR(S): Ichikawa, Tsuneki; Koizumi, Hitoshi; Shimizu,
 Akira
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004026981	A	20040129	JP 2002-184301	20020625
PRIORITY APPLN. INFO.:			JP 2002-184301	20020625

ED Entered STN: 30 Jan 2004

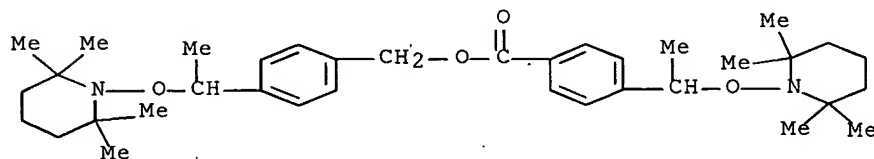
AB The polymers, useful for resists for radiation lithog., are manufactured by
 reaction of monomers capable of living polymerization with compds. having
 living polymerization **initiating** groups on both ends via dissociative electron
 attachment groups which cleave by attachment of dissociative electron. The
 polymer main chain is cut by irradiation of electromagnetic wave or particle
 beam having energy sufficient to ionize the mol. Thus, 4-[1-(2,2,6,6-
 tetramethylpiperidiny-1-oxy)ethyl]benzyl alc. was esterified with 4-[1-
 (2,2,6,6-tetramethylpiperidiny-1-oxy)ethyl]benzoic acid, then the resulting
 ester was added 2% to styrene and heated to 130°, when living radical
 polymerization reaction occurred. The polymer was cut in half by irradiation of γ -
 ray.

IT 647849-32-9P

(manufacture of living polymers having radiation-cleavable structure in
 main chain)

RN 647849-32-9 HCAPLUS

CN Benzoic acid, 4-[1-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl]-,
 [4-[1-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl]phenyl]methyl
 ester (CA INDEX NAME)



IC ICM C08F004-00
 ICS C08F012-00; C08F020-00; C08J003-28; C08L101-00
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 25, 27, 74
 IT 647849-32-9P
 (manufacture of living polymers having radiation-cleavable structure in main chain)

L69 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2004:54261 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:94477
 TITLE: **Initiators** for nitroxide-mediated polymerization based on azlactone or their ring-opened derivatives
 INVENTOR(S): Fansler, Duane D.; Lewandowski, Kevin M.; Wendland, Michael S.; Gaddam, Babu N.
 PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA
 SOURCE: U.S., 11 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6680362	B1	20040120	US 2003-358767	20030205
US 2004152853	A1	20040805	US 2003-726956	20031203
US 6784265	B2	20040831		
WO 2004072139	A1	20040826	WO 2004-US1130	20040116
WO 2004072139	A8	20050224		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1590387	A1	20051102	EP 2004-702949	20040116
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2006516669	T	20060706	JP 2006-502858	20040116
PRIORITY APPLN. INFO.:			US 2003-358767	A3 20030205
			WO 2004-US1130	W 20040116

OTHER SOURCE(S): MARPAT 140:94477

ED Entered STN: 22 Jan 2004

AB A controlled radical polymerization **initiator** comprises $R5ZCO(CH2)nCR3R4NHCOQCR1[(CH2)qX][CH2CR1[QCONHCR3R4(CH2)nCOZR5]]mONR22$, wherein X is an H, an alkyl group, a cycloalkyl group, a heterocyclic group, an arenyl group, an aryl group, a nitrile, an acyl group or the residue of a free-radical **initiator**; R1 is H, an alkyl group, a cycloalkyl group, a heterocyclic group, an arenyl group or an aryl group; ON(R2)2 is the residue of an organonitroxide; R3 and R4 are each independently selected from an alkyl, a cycloalkyl group, an aryl group, an arenyl group, or R3 and R4 taken together with the carbon to which they are attached form a carbocyclic ring; Q is a linking group selected from a covalent bond, (CH2)o, CO2(CH2)o,

$\text{CO}_2(\text{CH}_2\text{CH}_2\text{O})_o$, $\text{CONR}_6(\text{CH}_2)_o$, $\text{COS}(\text{CH}_2)_o$, where o is 1 to 12, and R_6 is H, an alkyl group, a cycloalkyl group, an arenyl group, a heterocyclic group or an aryl group; each n is 0 or 1; m is 0 to 20; q is 0 or 1; Z is O, S or NR_6 , wherein R_6 is H, an alkyl group, a cycloalkyl group, an arenyl group, a heterocyclic group or an aryl group; R_5 is an organic or inorg. moiety and has a valency of p . The **initiators** have an azlactone or ring-opened azlactone moiety to provide telechelic (co)polymers. 4,4-Dimethyl-2-[1-(2,2,6,6-tetramethylpiperidin-1-yloxy)-ethyl]-4H-oxazol-5-one was prepared and used in polymerization of styrene.

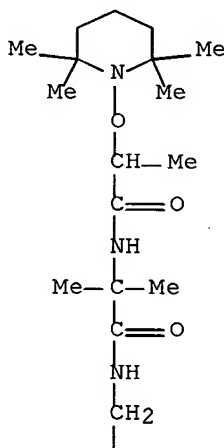
IT 642479-67-2P

(**initiators** for nitroxide-mediated polymerization based on azlactone or their ring-opened derivs.)

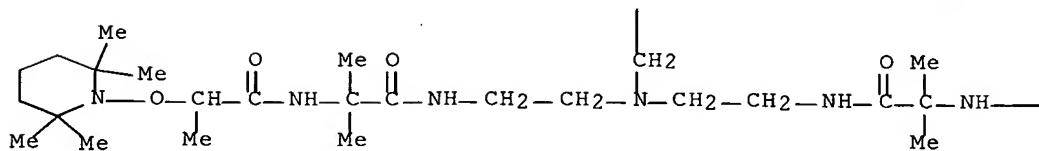
RN 642479-67-2 HCAPLUS

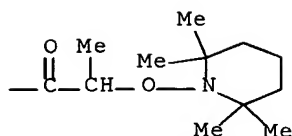
CN Propanamide, N,N',N'' -(nitrilotri-2,1-ethanediyl)tris[2-methyl-2-[[1-oxo-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]propyl]amino]- (9CI)
(CA INDEX NAME)

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IC ICM C08F002-00
 INCL 526217000; 526222000; 526224000; 526265000; 526271000; 526287000;
 526291000; 526303100; 526304000; 526306000
 CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST azlactone **initiator** nitroxide mediated radical polymn
 IT Polymerization **catalysts**
 (controlled radical; **initiators** for nitroxide-mediated
 polymerization based on azlactone or their ring-opened derivs.)
 IT **642479-67-2P**
 (**initiators** for nitroxide-mediated polymerization based on
 azlactone or their ring-opened derivs.)
 IT 642479-65-0P
 (**initiators** for nitroxide-mediated polymerization based on
 azlactone or their ring-opened derivs.)
 IT 9003-53-6P, Styrene homopolymer
 (**initiators** for nitroxide-mediated polymerization based on
 azlactone or their ring-opened derivs.)
 IT 642479-59-2P 642479-61-6P 642479-63-8P
 (**initiators** for nitroxide-mediated polymerization based on
 azlactone or their ring-opened derivs.)
 IT 62-57-7, 2-Aminoisobutyric acid 563-76-8, 2-Bromopropionyl bromide
 2564-83-2, TEMPO 4097-89-6, Tris(2-aminoethyl)amine 21055-93-6,
 Sodium diethylthiocarbamate
 (**initiators** for nitroxide-mediated polymerization based on
 azlactone or their ring-opened derivs.)
 REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2004:42401 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:236159
 TITLE: Synthesis of Nanosized "Cored" Star Polymers
 AUTHOR(S): Beil, James B.; Zimmerman, Steven C.
 CORPORATE SOURCE: Department of Organic Chemistry, University of
 Illinois at Urbana Champaign, Urbana, IL, 61801,
 USA
 SOURCE: Macromolecules (2004), 37(3), 778-787
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 19 Jan 2004
 AB A synthetic approach to nanosized "cored" star polymers is reported. A
 5,10,15,20-tetrakis(4-carboxyphenyl)porphyrin core was functionalized with
 four 2,2,6,6-tetramethylpiperidinyl-1-oxy (TEMPO) **initiating** groups. Four-
 armed star copolymers of styrene and 4-hydroxystyrene were synthesized and
 functionalized with 3,5-di(3-buten-1-oxy) benzyl bromide groups but exhibited
 poor solubility As an alternative, 5,10,15,20-tetrakis(3',5'-

dihydroxyphenyl)porphyrin was functionalized with 2-bromo-2-methyl-propionyl groups capable of **initiating** atom transfer radical polymerization (ATRP). Copolymn. of the core **initiator** with 1-but-3-enyl-4-vinylbenzene and styrene at low conversion produced soluble eight-armed star block copolymers. Through the ring-closing metathesis (RCM) reaction, the alkene groups of the polymer were intramolecularly cross-linked. The ester groups linking the cross-linked polymer arms to the porphyrin core were hydrolyzed, producing a "cored" star polymer with a mol. weight of approx. 20 kDa and a polydispersity index (PDI) of 1.5.

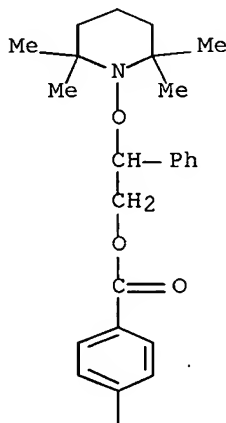
IT **668420-45-9P**

(polymerization **catalyst**; in preparation of nanosized "Cored" star polymers)

RN 668420-45-9 HCAPLUS

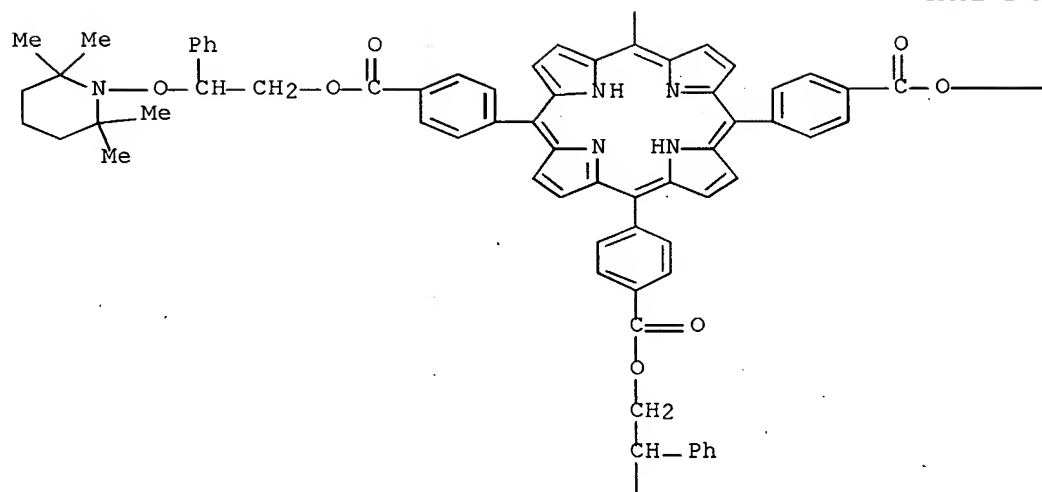
CN Benzoic acid, 4,4',4'',4'''-(21H,23H-porphine-5,10,15,20-tetrayl)tetrakis-, tetrakis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl] ester (9CI) (CA INDEX NAME)

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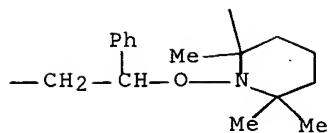


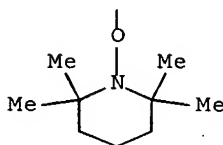
Me
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PAGE 2-A



PAGE 2-B





CC 35-4 (Chemistry of Synthetic High **Polymers**)
 ST Star block copolymer TEMPO contg core **initiator** ATRP
 IT **668420-45-9P** 668420-51-7P
 (polymerization **catalyst**; in preparation of nanosized "Cored" star polymers)
 IT 245107-65-7DP, crosslinked derivative by metathesis **catalyst**,
 and hydrolyzed
 (preparation of nanosized "Cored" star polymers)
 IT 245107-65-7P 668420-49-3DP, derivative with a core **initiator**,
 hydrolyzed, reaction product with di-substituted benzyl bromide
 668420-50-6DP, derivative with styrene-hydroxy styrene copolymer
 (star polymer; preparation of nanosized "Cored" star polymers)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:33987 HCAPLUS Full-text

DOCUMENT NUMBER: 140:94467

TITLE: Azlactone **initiators** for
 nitroxide-mediated polymerization

INVENTOR(S): Lewandowski, Kevin M.; Fansler, Duane D.;
 Wendland, Michael S.; Gaddam, Babu N.

PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA

SOURCE: U.S., 11 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6677413	B1	20040113	US 2003-358724	20030205
US 2004152852	A1	20040805	US 2003-726405	20031203
US 6784264	B2	20040831		
WO 2004072127	A1	20040826	WO 2003-US41366	20031223

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
 MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
 SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN,
 YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,
 DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
 SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
 MR, NE, SN, TD, TG

10/519,030

AU 2003297540	A1	20040906	AU 2003-297540	20031223
EP 1590374	A1	20051102	EP 2003-815923	20031223
EP 1590374	B1	20060614		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

JP 2006514133	T	20060427	JP 2004-568343	20031223
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AT 329933	T	20060715	AT 2003-815923	20031223
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PRIORITY APPLN. INFO.:

US 2003-358724	A3	20030205
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WO 2003-US41366	W	20031223
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OTHER SOURCE(S): MARPAT 140:94467

ED Entered STN: 15 Jan 2004

AB The **initiators** have an azlactone or ring-opened azlactone moiety to provide telechelic (co)polymers. AzTEMPO (0.00066 mol) and styrene (0.132 mol) were mixed in toluene, the solution was deoxygenated by bubbling N (g) through it for 30 min and heated to 130°, after 16 h the product had Mn 20,611 g/mol, then a 1% solution of tris(2-aminoethyl)amine (0.000226 mol) in toluene was added in two portions to give a three-arm polystyrene of Mn 50,061 g/mol.

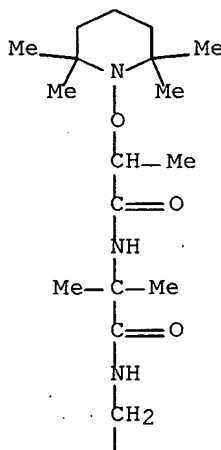
IT **642479-67-2P**

(azlactone **initiators** for nitroxide-mediated polymerization of styrene)

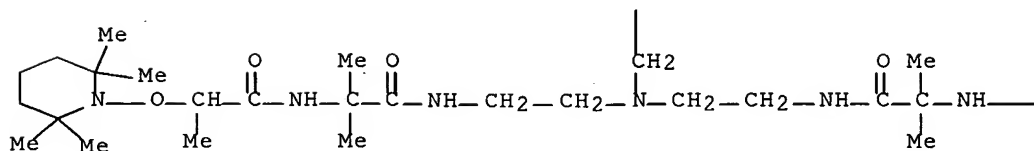
RN 642479-67-2 HCAPLUS

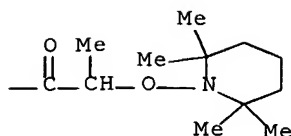
CN Propanamide, N,N',N''-(nitrilotri-2,1-ethanediyl)tris[2-methyl-2-[[1-oxo-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]propyl]amino]- (9CI)
(CA INDEX NAME)

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- IC ICM C08F002-00
- INCL 526204000; 526217000; 526222000; 526224000; 526265000; 526271000;
526287000; 526291000; 526303100; 526304000
- CC 35-3 (Chemistry of Synthetic High **Polymers**)
Section cross-reference(s): 67
- IT Polymerization **catalysts**
(radical; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT **642479-67-2P**
(azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 9003-53-6DP, Polystyrene, azlactone-terminated
(azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 2564-83-2, TEMPO 29513-26-6, 2-Vinyl-4,4-dimethyl azlactone
(azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 4097-89-6, Tris(2-aminoethyl)amine
(coupling agent; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 642479-65-0P
(**initiator**; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 642479-59-2P
(intermediate; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 642479-61-6P
(reaction with TEMPO; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 563-76-8, 2-Bromopropionyl bromide
(reaction with aminoisobutyric acid; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 62-57-7, 2-Aminoisobutyric acid
(reaction with bromopropionyl bromide; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 21055-93-6, Sodium diethylthiocarbamate
(reaction with bromopropionylamino methylpropionic acid; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 642479-63-8P
(ring closure reaction; azlactone **initiators** for nitroxide-mediated polymerization of styrene)
- IT 9003-53-6P, Polystyrene
(star, 3-arm; azlactone **initiators** for nitroxide-mediated polymerization of styrene)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:42249 HCAPLUS Full-text
 DOCUMENT NUMBER: 138:107153
 TITLE: Multifunctional alkoxyamines based on polyalkylpiperidines, polyalkylpiperazinones and polyalkylmorpholinones and their use as polymerization regulators/**initiators**
 INVENTOR(S): Kramer, Andreas; Muehlebach, Andreas; Nesvadba, Peter; Zink, Marie-Odile; Hintermann, Tobias
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
 SOURCE: PCT Int. Appl., 48 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003004471	A1	20030116	WO 2002-EP7131	20020627
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2450232	A1	20030116	CA 2002-2450232	20020627
AU 2002325279	A1	20030121	AU 2002-325279	20020627
EP 1417171	A1	20040512	EP 2002-758282	20020627
EP 1417171	B1	20071121		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1522247	A	20040818	CN 2002-813456	20020627
JP 2005502622	T	20050127	JP 2003-510639	20020627
MX 2003PA11833	A	20040326	MX 2003-PA11833	20031218
US 2004167303	A1	20040826	US 2003-482546	20031230
US 6936670	B2	20050830		
PRIORITY APPLN. INFO.:			EP 2001-810664	A 20010705
			WO 2002-EP7131	W 20020627

OTHER SOURCE(S): MARPAT 138:107153

ED Entered STN: 17 Jan 2003

AB The instant invention relates to multifunctional alkoxyamines based on polyalkylpiperidines, polyalkylpiperazinones and polyalkylmorpholinones and their use as polymerization regulators/ **initiators**. Further subjects of the invention are a polymerizable composition comprising an ethylenically unsatd. monomer (e.g., styrene) or oligomer and the alkoxyamine compound as well as a process for polymerization and a process for preparation of the compds.

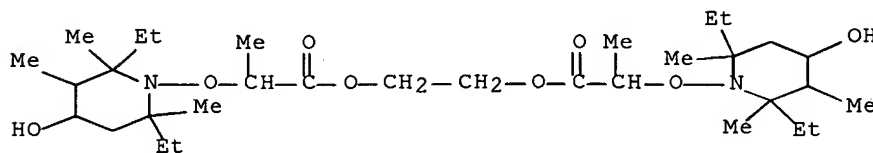
IT 485844-67-5P 485844-69-7P 485844-70-0P
 485844-71-1P 485844-72-2P 485844-74-4P
 485844-75-5P 485844-77-7P 485844-78-8P

485844-79-9P 485844-80-2P 485844-81-3P

(multifunctional alkoxyamines based on polyalkylpiperidines,
polyalkylpiperazinones and polyalkylmorpholinones and their use as
polymerization regulators/**initiators**)

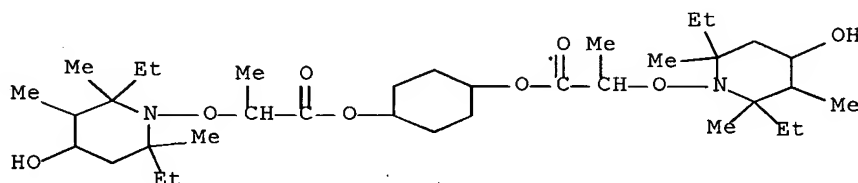
RN 485844-67-5 HCAPLUS

CN Propanoic acid, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



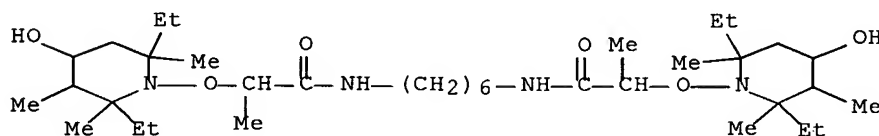
RN 485844-69-7 HCAPLUS

CN Propanoic acid, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]-, 1,4-cyclohexanediyl ester (9CI) (CA INDEX NAME)



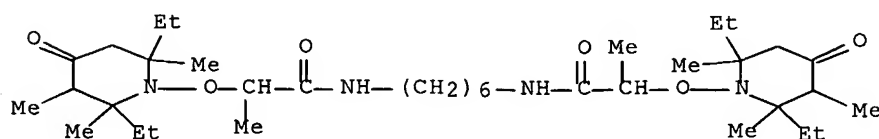
RN 485844-70-0 HCAPLUS

CN Propanamide, N,N'-1,6-hexanediylbis[2-(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]- (CA INDEX NAME)



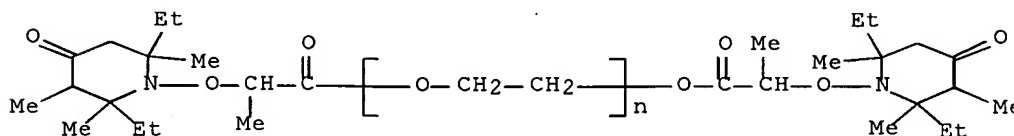
RN 485844-71-1 HCAPLUS

CN Propanamide, N,N'-1,6-hexanediylbis[2-(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]- (CA INDEX NAME)



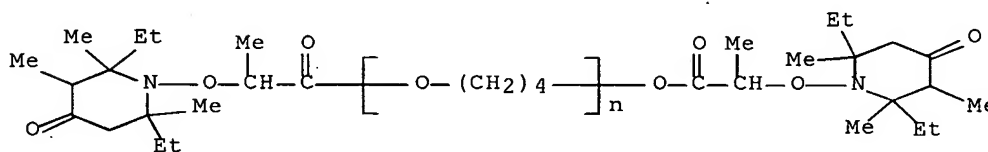
RN 485844-72-2 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyloxy)-1-oxopropyl]- ω -[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyloxy)-1-oxopropoxy]- (9CI) (CA INDEX NAME)



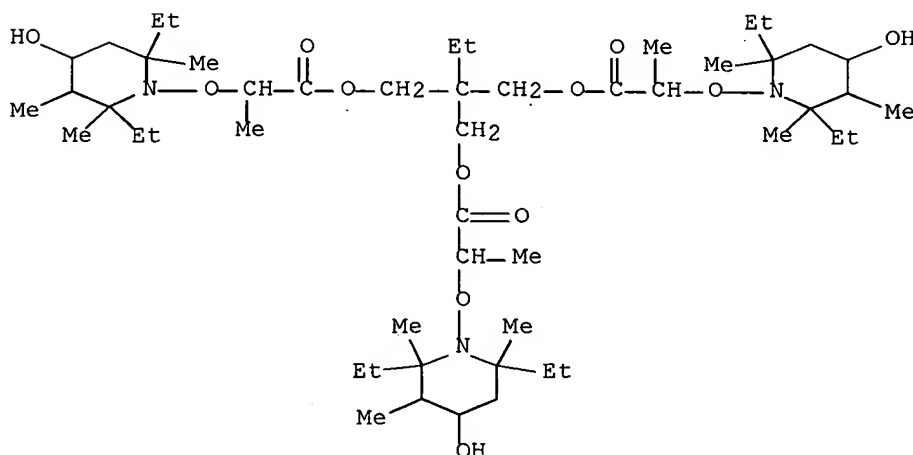
RN 485844-74-4 HCAPLUS

CN Poly(oxy-1,4-butanediyl), α -[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyloxy)-1-oxopropyl]- ω -[2-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyloxy)-1-oxopropoxy]- (9CI) (CA INDEX NAME)



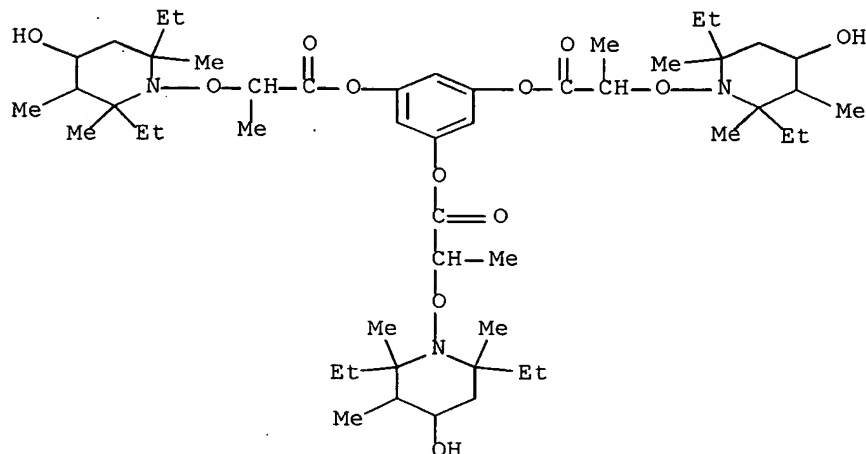
RN 485844-75-5 HCAPLUS

CN Propanoic acid, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-, 2-[[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-1-oxopropoxy]methyl]-2-ethyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



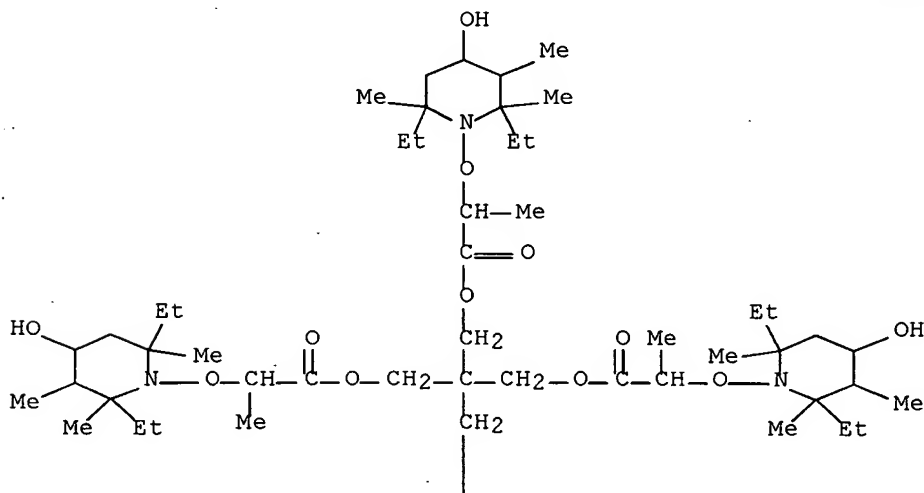
RN 485844-77-7 HCAPLUS

CN Propanoic acid, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-, 1,3,5-benzenetriyl ester (9CI) (CA INDEX NAME)

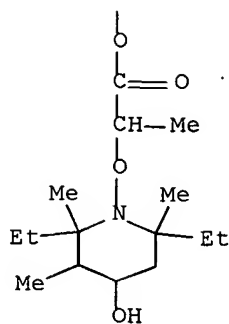


RN 485844-78-8 HCAPLUS

CN Propanoic acid, 2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-, 2,2-bis[[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyloxy)-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



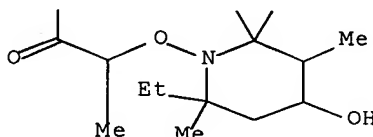
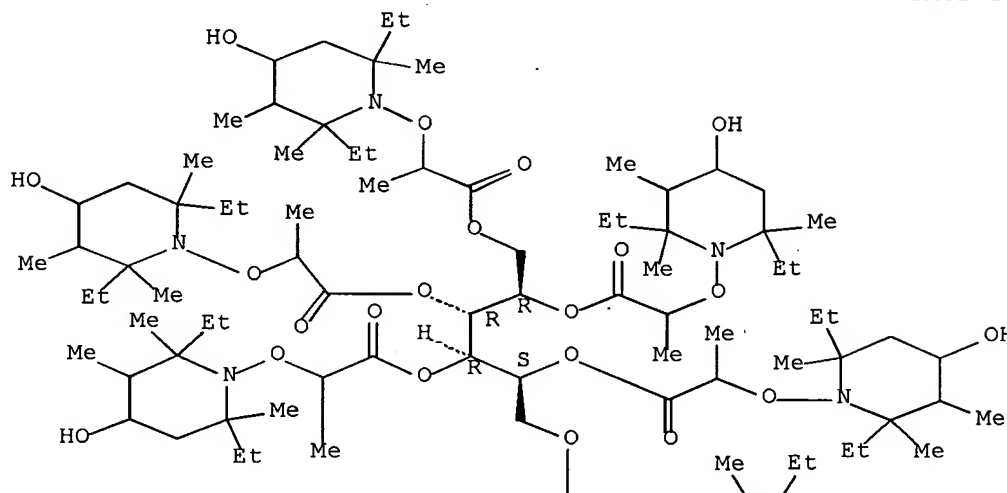
PAGE 1-A



RN 485844-79-9 HCAPLUS

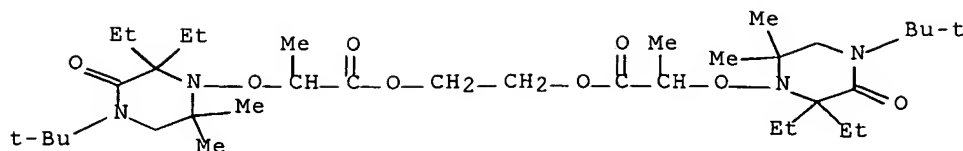
CN D-Glucitol, hexakis[2-[(2,6-diethyl-4-hydroxy-2,3,6-trimethyl-1-piperidinyl)oxy]propanoate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



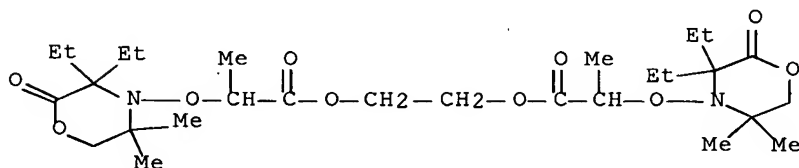
RN 485844-80-2 HCAPLUS

CN Propanoic acid, 2-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



RN 485844-81-3 HCAPLUS

CN Propanoic acid, 2-[(3,3-diethyl-5,5-dimethyl-2-oxo-4-morpholinyl)oxy]-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



IC ICM C07D211-94

ICS C08F004-00; C08F002-38; C08F012-08; C08F020-18

CC 35-3 (Chemistry of Synthetic High **Polymers**)

ST piperidine alkyl **initiator** polymn; piperazinone alkyl **initiator** polymn; morpholinone alkyl **initiator** polymn

IT Polymerization **catalysts**

(radical; multifunctional alkoxyamines based on polyalkylpiperidines, polyalkylpiperazinones and polyalkylmorpholinones and their use as polymerization regulators/**initiators**)

IT 485844-67-5P 485844-69-7P 485844-70-0P

485844-71-1P 485844-72-2P 485844-74-4P

485844-75-5P 485844-77-7P 485844-78-8P

485844-79-9P 485844-80-2P 485844-81-3P

(multifunctional alkoxyamines based on polyalkylpiperidines, polyalkylpiperazinones and polyalkylmorpholinones and their use as polymerization regulators/**initiators**)

IT 9003-49-0P, Poly(n-butyl acrylate) 9003-53-6P, Polystyrene

(multifunctional alkoxyamines based on polyalkylpiperidines, polyalkylpiperazinones and polyalkylmorpholinones and their use as polymerization regulators/**initiators**)

IT 3030-47-5 5468-93-9 51210-48-1 61745-37-7 200192-34-3

248603-09-0 264279-68-7 264279-93-8 286470-47-1 286470-49-3

300707-30-6 485844-68-6 485844-73-3 485844-76-6

(multifunctional alkoxyamines based on polyalkylpiperidines, polyalkylpiperazinones and polyalkylmorpholinones and their use as polymerization regulators/**initiators**)

REFERENCE COUNT:

5

THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2002:964328 HCAPLUS Full-text
 DOCUMENT NUMBER: 138:39710
 TITLE: N-alkoxy 4-imino piperidine polymerization
 regulators and their use in free radical-mediated
 polymerization of vinyl monomers to low dispersity
 polymers
 INVENTOR(S): Nesvadba, Peter; Hintermann, Tobias; Kramer,
 Andreas; Zink, Marie-Odile; Bugnon, Lucienne
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
 SOURCE: PCT Int. Appl., 51 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002100831	A1	20021219	WO 2002-EP6108	20020604
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CA 2443718	A1	20021219	CA 2002-2443718	20020604
AU 2002328806	A1	20021223	AU 2002-328806	20020604
EP 1397349	A1	20040317	EP 2002-764577	20020604
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
CN 1514827	A	20040721	CN 2002-811633	20020604
JP 2005502601	T	20050127	JP 2003-503600	20020604
MX 2003PA10132	A	20040310	MX 2003-PA10132	20031106
US 2004176553	A1	20040909	US 2003-480188	20031209
US 7199245	B2	20070403		
PRIORITY APPLN. INFO.:			EP 2001-810567	A 20010613
			EP 2001-811154	A 20011128
			WO 2002-EP6108	W 20020604

OTHER SOURCE(S): MARPAT 138:39710

ED Entered STN: 20 Dec 2002

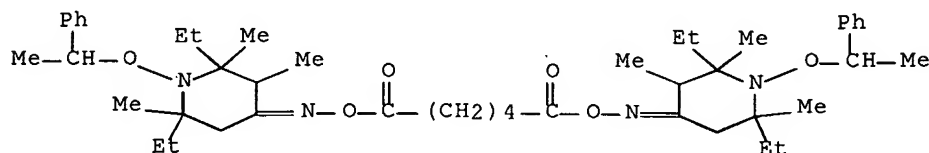
AB The present invention relates to selected 4-imino-N-alkoxy-polyalkyl-piperidine compds. preparation, a polymerizable composition comprising a) at least one ethylenically unsatd. monomer and b) a 4-imino-N-alkoxy- polyalkyl-piperidine compound Further aspects of the present invention are a process for polymerizing ethylenically unsatd. monomers, and the use of 4-imino-N-alkoxy-polyalkyl-piperidine compds. for controlled polymerization The intermediate N-oxyl derivs., a composition of the N-oxyl derivs. with ethylenically unsatd. monomers and a free radical **initiator**, as well as a process for polymerization are also subjects of the present invention.

IT 478697-58-4P

(preparation of N-alkoxy 4-imino piperidine polymerization regulators and their use in free radical-mediated vinyl monomer polymerization to low

dispersity polymers)

RN 478697-58-4 HCAPLUS

CN 4-Piperidinone, 2,6-diethyl-2,3,6-trimethyl-1-(1-phenylethoxy)-,
O,O'-(1,6-dioxo-1,6-hexanediyl)dioxime (9CI) (CA INDEX NAME)

IC ICM C07D211-94

ICS C08F004-00

CC 35-3 (Chemistry of Synthetic High Polymers)

IT 478697-27-7P 478697-34-6P 478697-38-0P 478697-40-4P

478697-42-6P 478697-44-8P 478697-47-1P 478697-49-3P

478697-53-9P 478697-55-1P **478697-58-4P** 478697-60-8P

478697-62-0P 478697-65-3P 478697-67-5P

(preparation of N-alkoxy 4-imino piperidine polymerization regulators and
their

use in free radical-mediated vinyl monomer polymerization to low
dispersity polymers)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L69 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:868581 HCAPLUS Full-text

DOCUMENT NUMBER: 138:137635

TITLE: Synthesis of six-arm star polymer by
nitroxide-mediated "living" radical polymerization

AUTHOR(S): Miura, Yozo; Yoshida, Yuji

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School
of Engineering, Osaka City University, Osaka,
558-8585, JapanSOURCE: Polymer Journal (Tokyo, Japan) (2002), 34(10),
748-754

CODEN: POLJB8; ISSN: 0032-3896

PUBLISHER: Society of Polymer Science, Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 15 Nov 2002

AB A dendritic multifunctional **initiator** with six TEMPO-based alkoxyamine moieties was prepared from 4-bromoethylbenzene in seven steps. Six-arm star polymers were synthesized by the radical bulk polymerization of styrene using the dendritic alkoxyamine as an **initiator**. The styrene polymers were carried out at 120° using the dendritic alkoxyamine concns. of 5.0, 12.8 and 18.8 mmol/L. When the alkoxyamine concentration was 5.0 mmol/L, the polydispersity of the resulting star polymers increased with conversion, and the polydispersity of the star polymer at 72% conversion was 1.59. When the alkoxyamine concns. were 12.8 and 18.8 mmol/L, the polymerization was well controlled to give star polymers with low polydispersity even at high conversions. Mol. weight of the star polymers determined by NMR significantly differed from GPC and light scattering detns. and was attributed to the unique structure of the polymers. The six-arm polystyrene synthesis showed features of the living polymerization with some side reactions at high monomer

conversion. The deviations from the living polymerization character were discussed on the basis of GPC elution curves of the star polymers.

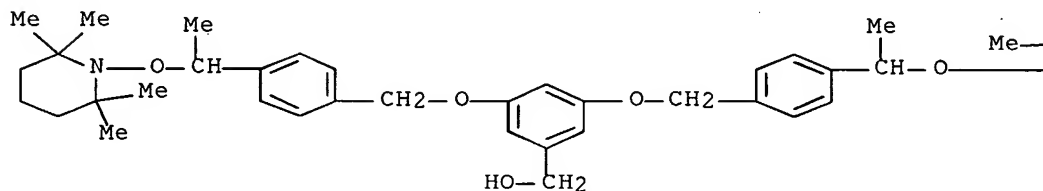
IT 492446-77-2P 492446-78-3P

(in synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

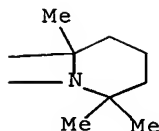
RN 492446-77-2 HCAPLUS

CN Benzenemethanol, 3,5-bis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl]phenyl]methoxy]- (CA INDEX NAME)

PAGE 1-A



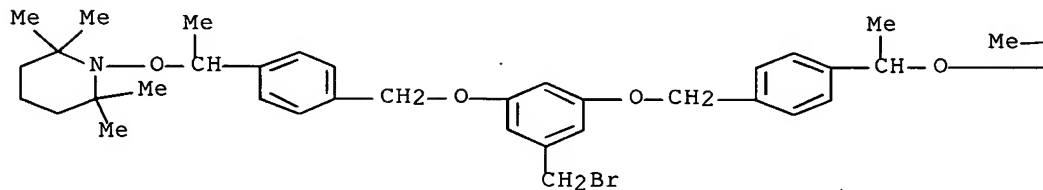
PAGE 1-B

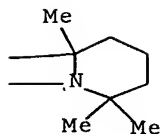


RN 492446-78-3 HCAPLUS

CN Piperidine, 1,1'-[[5-(bromomethyl)-1,3-phenylene]bis(oxymethylene-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



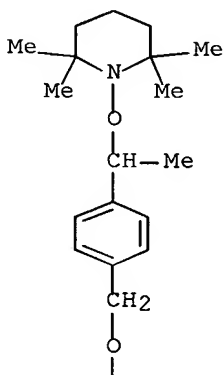


IT 492446-79-4P

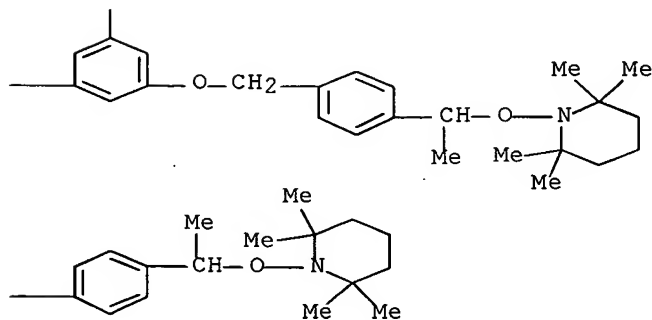
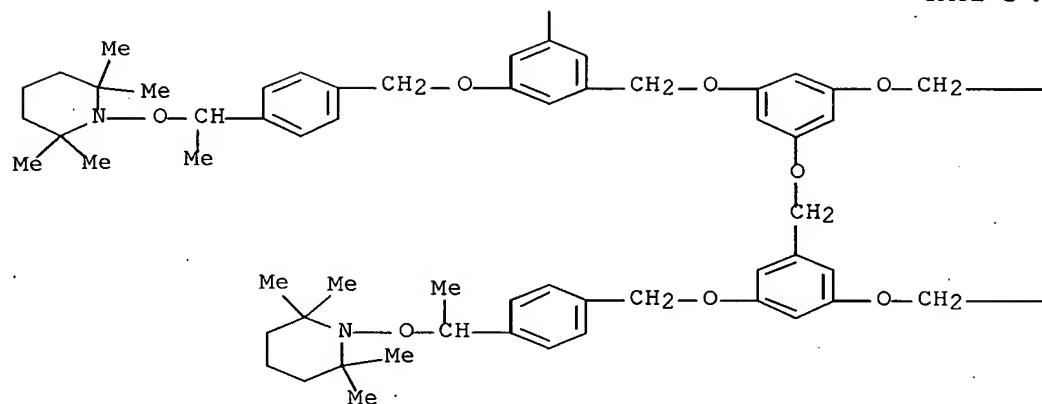
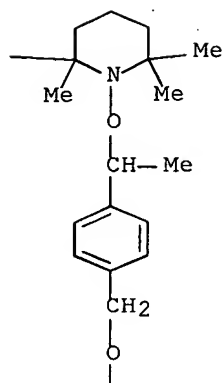
(synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

RN 492446-79-4 HCAPLUS

CN Piperidine, 1,1',1'',1''',1'''',1'''''-[1,3,5-
 benzenetriyltris[oxymethylene-5,1,3-benzenetriylbis(oxymethylene-4,1-
 phenyleneethylideneoxy)]]hexakis[2,2,6,6-tetramethyl- (9CI) (CA INDEX
 NAME)



Me—



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 Section cross-reference(s): 67

ST multifunctional radical living **catalyst** star polymer
 synthesis

IT Polymerization
 (living, radical, bulk; multifunctional TEMPO-based radical
initiators for synthesis of six-arm star polymers)

IT Polymerization **catalysts**
 (living, radical; multifunctional TEMPO-based radical
initiators for synthesis of six-arm star polymers)

IT NMR (nuclear magnetic resonance)
 Size-exclusion chromatography
 (mol. structure determination of six-arm star polymers produced using
 multifunctional TEMPO-based radical **initiators**)

IT Coupling reaction
 (star-star coupling; synthesis of six-arm star polymers using
 multifunctional TEMPO-based radical **initiators**)

IT Molecular structure-property relationship
 (synthesis of six-arm star polymers using multifunctional
 TEMPO-based radical **initiators**)

IT 584-08-7, Potassium carbonate
 (in synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

IT 492446-76-1P **492446-77-2P 492446-78-3P**
 (in synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

IT 68-12-2, DMF, reactions 108-73-6, 1,3,5-Benzenetriol 558-13-4,
 Carbon tetrabromide 1585-07-5, 4-Bromoethylbenzene 2564-83-2,
 TEMPO 7789-60-8, Phosphorous tribromide 16940-66-2, Sodium
 borohydride 29654-55-5, 3,5-Dihydroxybenzyl alcohol
 (in synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

IT 178625-97-3P 209550-23-2P 209550-24-3P
 (in synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

IT 594-19-4, tert-Butyllithium 603-35-0, Triphenylphosphine, reactions
 1876-22-8, Di-tert-butyl diperoxyoxalate 17455-13-9, 18-Crown-6
 (in synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

IT 9003-53-6P, Polystyrene
 (star, six-arm; multifunctional TEMPO-based radical
initiators for synthesis of six-arm star polymers)

IT **492446-79-4P**
 (synthesis of multifunctional TEMPO-based radical
initiators for production of six-arm star polymers)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2002:626615 HCAPLUS Full-text
 DOCUMENT NUMBER: 137:338264
 TITLE: Synthesis of end-functionalized polymer with
 cyclodextrin based on tempo-mediated radical
 polymerization
 AUTHOR(S): Narumi, Atsushi; Miura, Yutaka; Satoh, Toshifumi;
 Kaga, Harumi; Kakuchi, Toyoji
 CORPORATE SOURCE: Div. Molecular Chem., Grad. Sch. Eng., Hokkaido
 Univ., Sapporo, 060-8628, Japan

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2002), 43(2), 279-280
 CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 20 Aug 2002

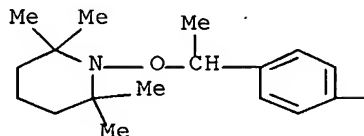
AB Polystyrene was end-functionalized with a cyclic oligosacchamide, cyclodextrin (CD). First, mono-6-[4-[1'-(2'',2'',6'',6''-tetramethyl-1''-piperidinyloxy)ethyl]benzamido]-per-2,3,6-acetyl- β -cyclodextrin was prepared and was used as **initiator** to polymerize styrene. The resulting polymer was deacetylated. A reversed-type micelle using the polymer with the β -CD core was prepared

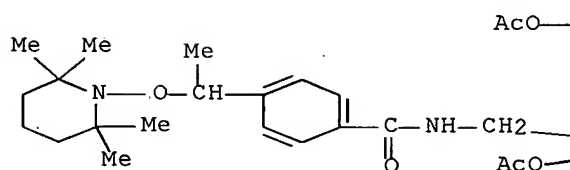
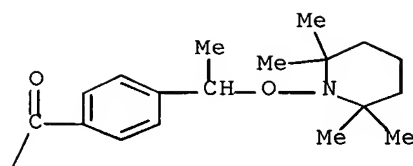
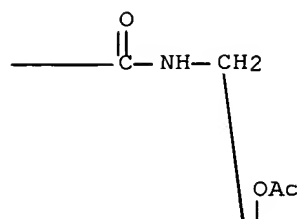
IT **474088-71-6P**
 (catalyst; in preparation of end-functionalized polymer with cyclodextrin based on tempo-mediated radical polymerization)

RN 474088-71-6 HCAPLUS

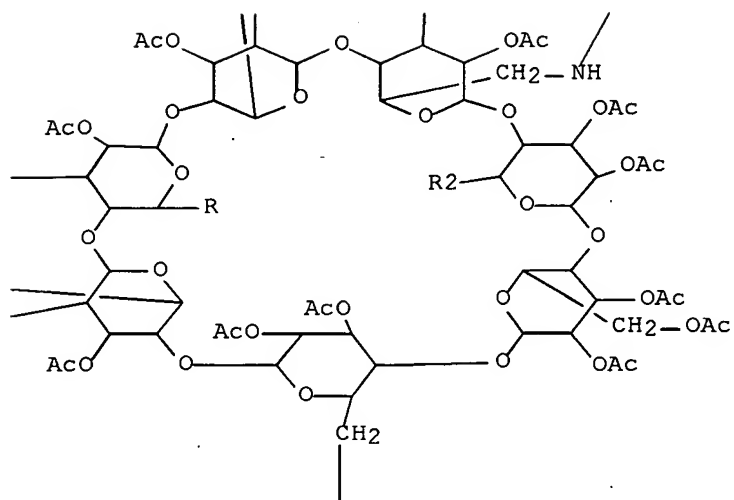
CN β -Cyclodextrin, 6A, 6B, 6C, 6D, 6E, 6F-hexadeoxy-6A, 6B, 6C, 6D, 6E, 6F-hexakis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]benzoyl]amino]-, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 3A, 3B, 3C, 3D, 3E, 3F, 3G, 6G-pentadecaacetate (9CI) (CA INDEX NAME)

PAGE 1-A

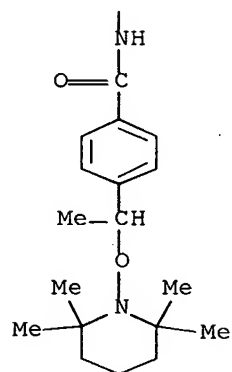




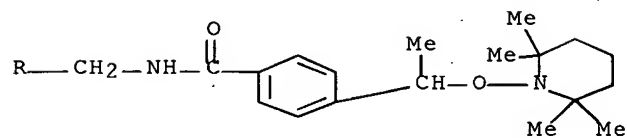
PAGE 2-B

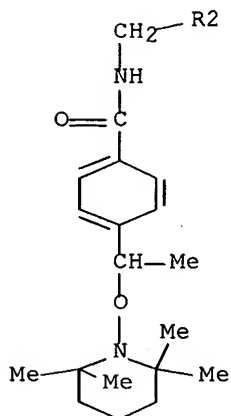


PAGE 3-B



PAGE 4-A





CC 35-4 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): 44

IT Polymerization **catalysts**

(living, radical; in preparation of end-functionalized polymer with cyclodextrin based on tempo-mediated radical polymerization)

IT **474088-71-6P**

(**catalyst**; in preparation of end-functionalized polymer with cyclodextrin based on tempo-mediated radical polymerization)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:354020 HCAPLUS Full-text

DOCUMENT NUMBER: 136:370147

TITLE: Soluble polymer supports for organic synthesis

INVENTOR(S): Janda, Kim D.; Gravert, Dennis J.

PATENT ASSIGNEE(S): The Scripps Research Institute, USA

SOURCE: U.S. Pat. Appl. Publ., 34 pp., Cont. of U.S. Ser. No. 161,604.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

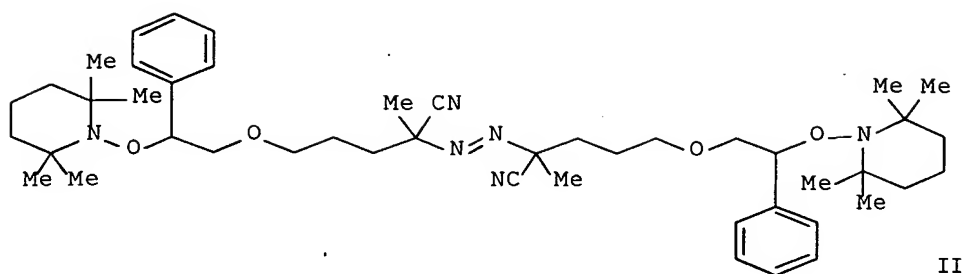
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2002055124	A1	20020509	US 2001-996402	20011119
PRIORITY APPLN. INFO.:			US 1998-161604	A1 19980923

ED Entered STN: 12 May 2002

GI



II

AB Polymer supports for liquid-phase organic synthesis (LPOS) are employed in a process for transferring a chemical intermediate between immiscible solvents. These compds. are produced with an expanded range of solubility range in a variety of solvent systems. A sequence of normal and "living" free radical polymers are employed to generate a library of block copolymers possessing either block or graft architecture with **initiators** having N:N and TEMPO groups tethered by ester or ether linkages for styrene, 4-tert-butylstyrene (I), 3,4-dimethoxystyrene, vinylpyrrolidinone, N-isopropylacrylamide, and 1-methacryloyloxy-2-phenyl-2-((2,2,6,6-tetramethyl-1-piperidin-1-yl)oxy)ethane. A typical block copolymer was manufactured by polymerization of 7.75 mmol styrene 8 h at 70° in 1,2-dichlorobenzene in the presence of **initiator** II, and polymerization of 1.08 mmol I 12 h at 130° in the presence of 1.02 mg intermediate.

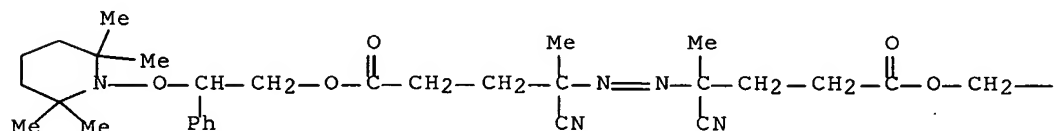
IT 188119-33-7P 203382-60-9P 213994-38-8P

(polymerization **initiator**; soluble graft and block styrene (derivative)-based polymer supports for organic synthesis)

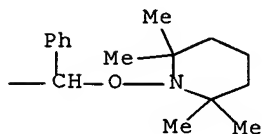
RN 188119-33-7 HCAPLUS

CN Pentanoic acid, 4,4'-azobis[4-cyano-, bis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidin-1-yl)oxy]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

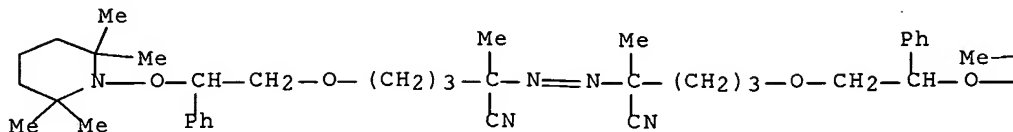


RN 203382-60-9 HCAPLUS

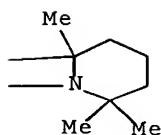
CN Pentanenitrile, 2,2'-azobis[2-methyl-5-[2-phenyl-2-[(2,2,6,6-

tetramethyl-1-piperidinyloxy]ethoxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



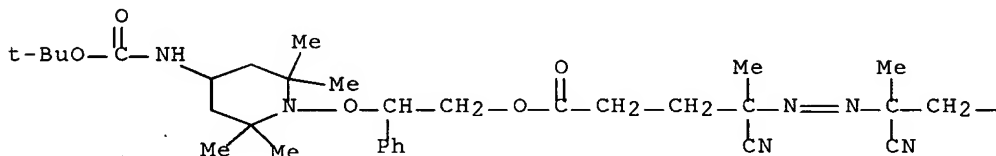
PAGE 1-B



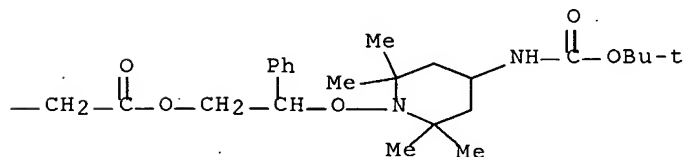
RN 213994-38-8 HCAPLUS

CN Pentanoic acid, 4,4'-azobis[4-cyano-, bis[2-[[4-[[[(1,1-dimethylethoxy) carbonyl] amino]-2,2,6,6-tetramethyl-1-piperidinyloxy]-2-phenylethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM G01N033-53

ICS G01N033-543; C08F008-30; C08F008-44; C08F008-32

INCL 435007100

CC 35-4 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): 23

ST soluble block graft polymer support combinatorial library org
synthesis; methacryloyloxyphenyl tetramethylpiperidinyloxyethane

polymer manuf; isopropylacrylamide block polymer manuf TEMPO azo
initiator; vinylpyrrolidinone block polymer manuf TEMPO azo
initiator; dimethoxystyrene block polymer manuf TEMPO azo
initiator; styrene tertiary butylstyrene block copolymer manuf
 TEMPO azo **initiator**

IT Hydrogenation **catalysts**

- (polymer-supported; soluble graft and block styrene (derivative)-based
 polymer supports for organic synthesis)
- IT 108-55-4, Glutaric anhydride 61478-29-3
 (hydrogenation **catalyst** precursor; soluble graft and block
 styrene (derivative)-based polymer supports for organic synthesis)
- IT 12092-47-6
 (hydrogenation **catalyst**; soluble graft and block styrene
 (derivative)-based polymer supports for organic synthesis)
- IT 213994-93-5P
 (hydrogenation **catalyst**; soluble graft and block styrene
 (derivative)-based polymer supports for organic synthesis)
- IT 213994-43-5P 213994-50-4P 423126-07-2P
 (polymerization **initiator** precursor; soluble graft and block
 styrene (derivative)-based polymer supports for organic synthesis)
- IT 94-36-0, Benzoyl peroxide, reactions 100-42-5, Styrene, reactions
 2564-83-2, TEMPO 2638-94-0, 4,4'-Azobis(cyanovaleric acid)
 14691-88-4, 4-Amino-TEMPO 17170-81-9, 4,4'-Azobis(4-cyanovaleroyl
 chloride) 24424-99-5, Di-tert-butyl dicarbonate
 (polymerization **initiator** precursor; soluble graft and block
 styrene (derivative)-based polymer supports for organic synthesis)
- IT 188119-33-7P 203382-60-9P 213994-38-8P
 (polymerization **initiator**; soluble graft and block styrene
 (derivative)-based polymer supports for organic synthesis)
- IT 161776-41-6
 (reactive polymerization **initiator** precursor; soluble graft and
 block styrene (derivative)-based polymer supports for organic synthesis)
- IT 213994-57-1P
 (reactive polymerization **initiator**; soluble graft and block styrene
 (derivative)-based polymer supports for organic synthesis)

L69 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:311344 HCAPLUS Full-text

DOCUMENT NUMBER: 137:79284

TITLE: Syntheses of functional alkoxyamines and
 application to syntheses of well-defined star
 polymers

AUTHOR(S): Miura, Yozo; Yoshida, Yuji

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School
 of Engineering, Osaka City University, Osaka,
 558-8585, Japan

SOURCE: Macromolecular Chemistry and Physics (2002),
 203(5/6), 879-888
 CODEN: MCHPES; ISSN: 1022-1352

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 25 Apr 2002

AB Three kinds of 2,2,6,6-tetramethylpiperidine-N-oxyl (TEMPO)-based
 alkoxyamines, 1-(4-iodophenyl)-(3), 1-(4-ethynylphenyl)-(4), and 1-[4-(1, 3,
 2-dioxaborinan-2-yl)phenyl]-1-(2,2,6,6-tetramethyl-1- piperidinyloxy)ethanes
 (5) were prepared The Pd-catalyzed cross-coupling reaction of 3 with 1,3,5-
 triethynylbenzene or 1,3,5-tribromobenzene with 4 gave the corresponding
 1,3,5-tris(alkoxyaminophenylethynyl)benzene 11, and the Pd-catalyzed cross-
 coupling reaction of 5 with 1,3,5-tribromobenzenegave the corresponding 1,3,5-

tris(alkoxyaminophenyl)benzene 12. Bulk polymerization of styrene (St) at 120°C **initiated** with 11 and 12 were investigated. The first-order plots, linear relationships between and conversion, and low Mw/Mns of the formed poly(St) showed that the polymerization proceeded in the "living" fashion leading to formation of well-defined three-arm star polymers with Mw/Mn of 1.20-1.40.

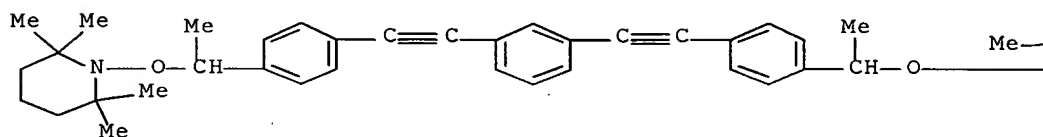
IT 439904-91-3P 439904-92-4P 439904-93-5P
439904-94-6P

(polymerization **initiator**; syntheses of TEMPO-based functional alkoxyamines and their application to syntheses of well-defined star polystyrenes)

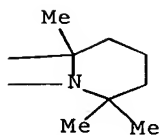
RN 439904-91-3 HCAPLUS

CN Piperidine, 1,1'-[1,3-phenylenebis(2,1-ethynediyl-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



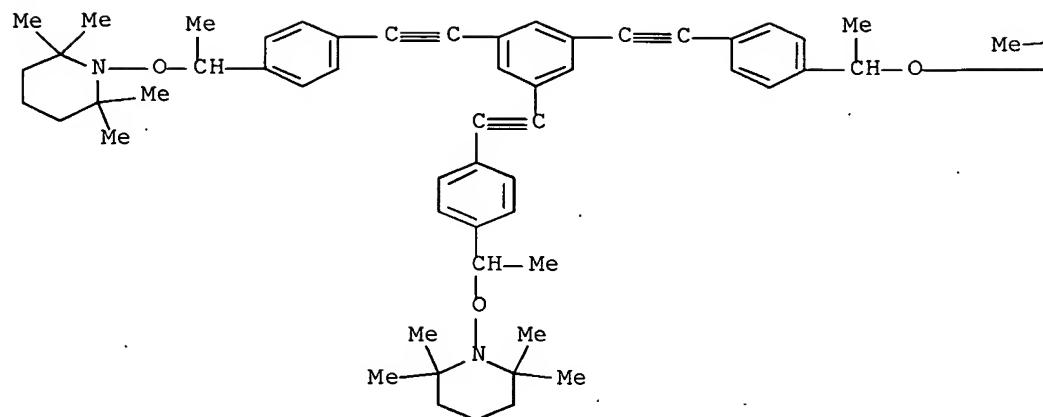
PAGE 1-B



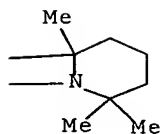
RN 439904-92-4 HCAPLUS

CN Piperidine, 1,1',1''-[1,3,5-benzenetriyltris(2,1-ethynediyl-4,1-phenyleneethylideneoxy)]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

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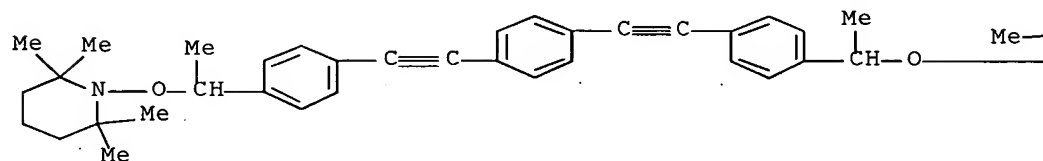
PAGE 1-B



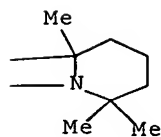
RN 439904-93-5 HCAPLUS

CN Piperidine, 1,1'-[1,4-phenylenebis(2,1-ethynediyl-4,1-phenyleneethylenedioxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

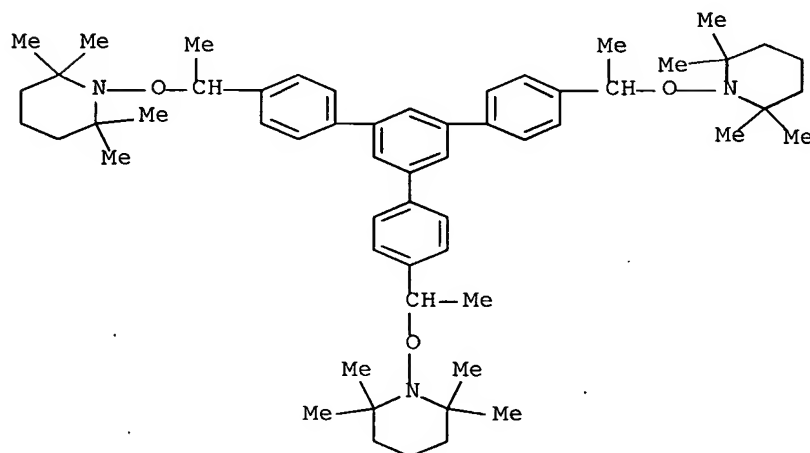
PAGE 1-A



PAGE 1-B



RN 439904-94-6 HCAPLUS
 CN Piperidine, 1,1'-[[5'-[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl][1,1':3',1''-terphenyl]-4,4''-diyl]bis(ethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)
 ST TEMPO based alkoxyamine synthesis styrene living polymn
initiation
 IT Amines, preparation
 (alkoxylated, polymerization **initiators**; syntheses of
 TEMPO-based functional alkoxyamines and their application to
 syntheses of well-defined star polystyrenes)
 IT Polymerization **catalysts**
 (atom transfer, living, radical; syntheses of TEMPO-based
 functional alkoxyamines and their application to syntheses of
 well-defined star polystyrenes)
 IT 154554-67-3
 (polymerization **initiator**; syntheses of TEMPO-based functional
 alkoxyamines and their application to syntheses of well-defined
 star polystyrenes)
 IT **439904-91-3P 439904-92-4P 439904-93-5P**
439904-94-6P
 (polymerization **initiator**; syntheses of TEMPO-based functional
 alkoxyamines and their application to syntheses of well-defined
 star polystyrenes)
 REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2002:232041 HCAPLUS Full-text
 DOCUMENT NUMBER: 137:20656
 TITLE: Synthesis and characterization of star-shaped
 polystyrene having β -cyclodextrin-core
 AUTHOR(S): Sugimoto, Naoya; Matsuda, Takeshi; Miura, Yutaka;
 Narumi, Atsushi; Kaga, Harumi; Kakuchi, Toyoji

CORPORATE SOURCE: Div. Molecular Chem., Grad. Sch. Eng., Hokkaido Univ., Sapporo, 060-8628, Japan

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2002), 43(1), 664-665
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 27 Mar 2002

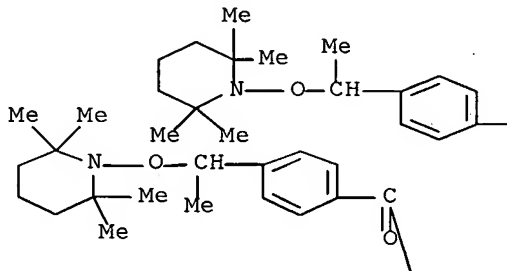
AB A cyclodextrin-based multifunctional **initiator** was prepared from amino-cyclodextrin and N-(1-methyl-4-carbonylbenzyloxy)-2,2,6,6-tetramethylpiperidine. Polymerization of styrene (St) was conducted by atom transfer radical polymerization using cyclodextrin-based multifunctional **initiator**.

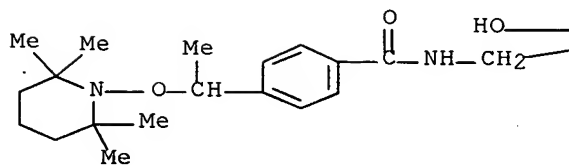
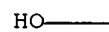
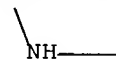
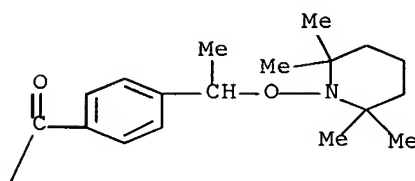
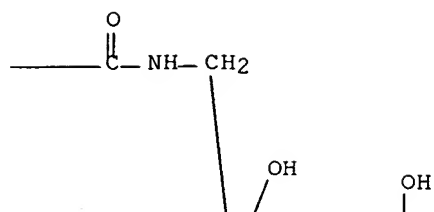
IT **434318-35-1P**
(**initiator**; in preparation and characterization of star-shaped polystyrene having β -cyclodextrin-core)

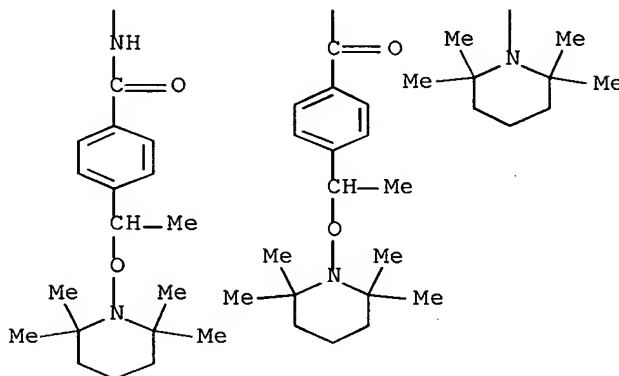
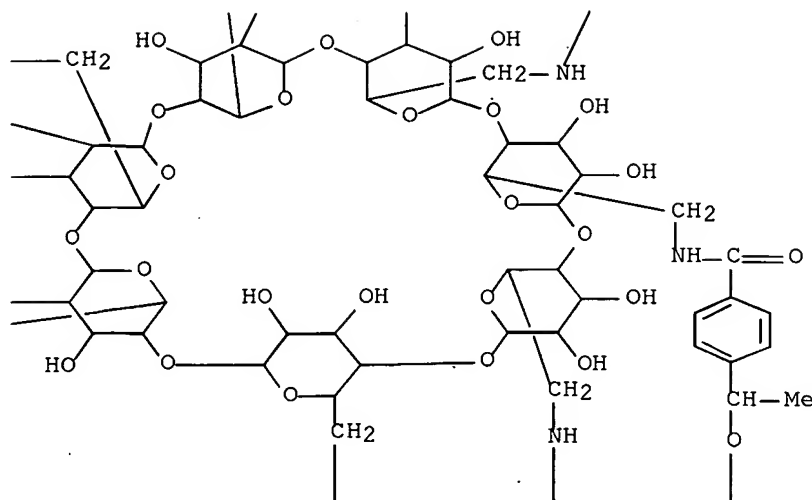
RN 434318-35-1 HCAPLUS

CN β -Cyclodextrin, 6A,6B,6C,6D,6E,6F,6G-heptadeoxy-6A,6B,6C,6D,6E,6F,6G-heptakis[[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]benzoyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A







CC 35-4 (Chemistry of Synthetic High **Polymers**)
 Section cross-reference(s): 44
 ST cyclodextrin based multifunctional ATRP **initiator** prepn;
 star shaped polystyrene cyclodextrin core prepn
 IT Polymerization
 Polymerization **catalysts**
 (atom transfer, radical; in preparation and characterization of
 star-shaped polystyrene having β -cyclodextrin-core)
 IT **434318-35-1P**
 (**initiator**; in preparation and characterization of star-shaped
 polystyrene having β -cyclodextrin-core)
 IT 9003-53-6DP, Poly(styrene), **initiated** by β -cyclodextrin
 based multifunctional TEMPO **initiator**
 (star-shaped; synthesis and characterization of star-shaped
 polystyrene having β -cyclodextrin-core)
 REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE

RE FORMAT

L69 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2002:182192 HCAPLUS Full-text
 DOCUMENT NUMBER: 136:217209
 TITLE: Dual purpose electroactive copolymers, preparation thereof, and use in opto-electronic devices
 INVENTOR(S): Hawker, Craig Jon; Klaerner, Gerrit; Lee, Jeong-Ik; Lee, Victor Yee-Way; Miller, Robert Dennis; Scott, John Campbell
 PATENT ASSIGNEE(S): International Business Machines Corporation, USA; The Board of Trustees of the Leland Stanford Junior University
 SOURCE: U.S., 19 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6355756	B1	20020312	US 1999-313903	19990518
US 2001024738	A1	20010927	US 2001-819119	20010327
US 6433115	B2	20020813		
US 2002045719	A1	20020418	US 2001-819116	20010327
US 6512070	B2	20030128		
PRIORITY APPLN. INFO.:			US 1999-313903	A3 19990518

ED Entered STN: 14 Mar 2002

AB A process for preparing a dual purpose electroactive copolymer comprised of charge transport polymeric segments and a light emitting polymeric segment comprises: (a) contacting a dihalo-substituted polycyclic aromatic reactant with a living free radical polymerization **initiator** under conditions effective to bring about polymerization, resulting in a light emitting polymeric intermediate comprised of linked polycyclic aromatic monomer units and two or more displaceable termini; and (b) synthesizing a charge transport polymeric segment comprised of polymerized charge transporting monomer units at each of the displaceable termini, via living free radical polymerization. The copolymers may be A-B-A triblock copolymers, brush-type graft copolymers, or variations thereof.

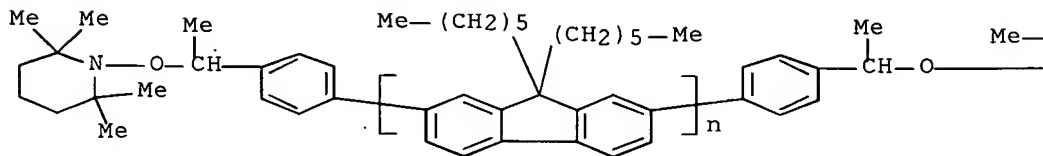
IT **402829-52-1P**

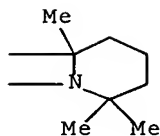
(dual purpose electroactive copolymers, preparation thereof, and use in opto-electronic devices)

RN 402829-52-1 HCAPLUS

CN Poly(9,9-dihexyl-9H-fluorene-2,7-diyl), α,ω -bis[4-[1-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



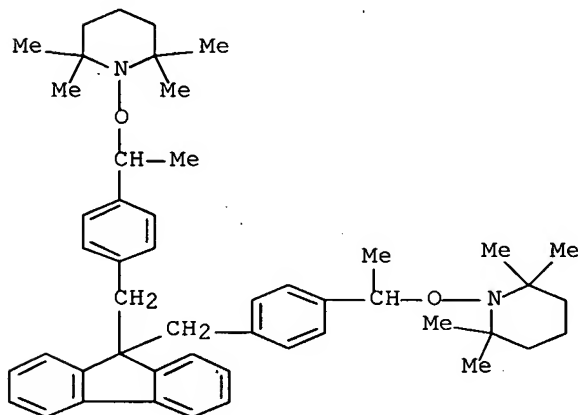


IT 402829-51-0P

(dual purpose electroactive copolymers, preparation thereof, and use in opto-electronic devices)

RN 402829-51-0 HCAPLUS

CN Piperidine, 1,1'-[9H-fluoren-9-ylidenebis(methylene-4,1-phenyleneethyldeneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C08F112-06

INCL 526347100

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73

IT Polymerization **catalysts**

(living, radical; dual purpose electroactive copolymers, preparation thereof, and use in opto-electronic devices)

IT 9003-53-6DP, Polystyrene, reaction products with fluorenyl piperidine derivs. 25067-59-8DP, N-Vinylcarbazole homopolymer, reaction products with piperidinyloxy compds. 201807-75-2DP, TEMPO-functionalized 225936-03-8P 362524-25-2DP, TEMPO-functionalized 402829-49-6P 402829-50-9P

402829-52-1P

(dual purpose electroactive copolymers, preparation thereof, and use in opto-electronic devices)

IT 236092-91-4P **402829-51-0P**

(dual purpose electroactive copolymers, preparation thereof, and use in opto-electronic devices)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L69 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:629050 HCAPLUS Full-text

DOCUMENT NUMBER: 135:358194

TITLE: Synthesis of three- and six-arms polystyrene via living/controlled free radical polymerization

AUTHOR(S): Chessa, G.; Scrivanti, A.; Matteoli, U.; Castelvetro, V.

CORPORATE SOURCE: Dipartimento di Chimica, Universita di Venezia, Venice, 30123, Italy

SOURCE: Polymer (2001), 42(23), 9347-9353

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 30 Aug 2001

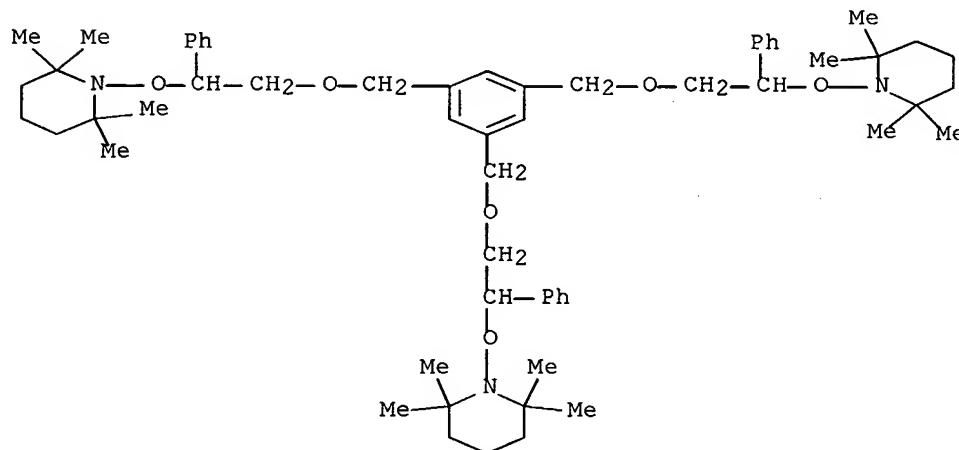
AB Three new polyfunctional TEMPO-based **initiators** have been synthesized by reaction of some mesitylene cores and 2,2,6,6-tetramethyl-1-(2-hydroxy-1-phenylethoxy)-piperidine. They have been employed in the living/controlled radical polymerization of styrene to provide three- and six-arm star macromols. These polymers have mol. weight ranging from 6000 to 11000 g/mol and narrow mol. weight distributions (PD<1.3). Cleavage of the link between the core and the arms was achieved, using a two-step sequence implying the preliminary removal of the TEMPO chain ends followed by catalytic hydrogenolysis. The dimensions of the individual arms so obtained closely match the values expected from the styrene/**initiator** molar ratio in the polymerization feed.

IT **372522-45-7P 372522-46-8P 372522-47-9P**

(synthesis of three- and six-arm polystyrene via living/controlled free radical polymerization)

RN 372522-45-7 HCAPLUS

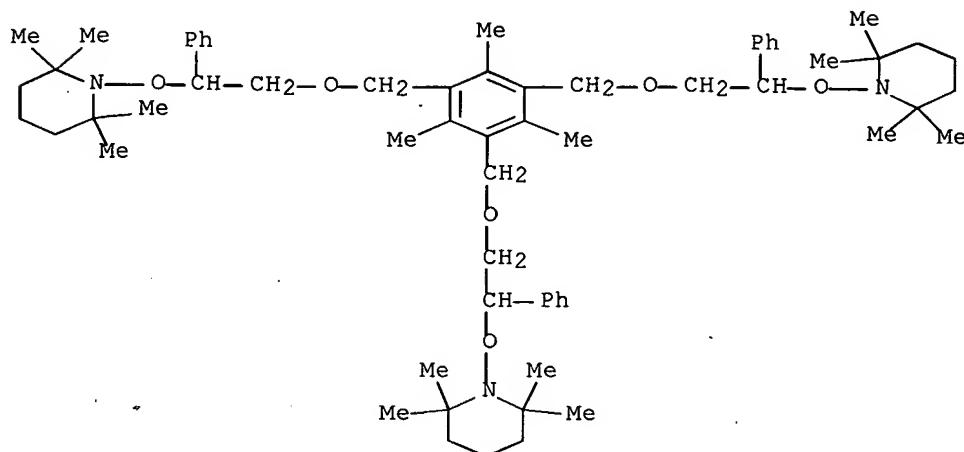
CN Piperidine, 1,1',1''-[1,3,5-benzenetriyltris[methyleneoxy(1-phenyl-2,1-ethanediyl)oxy]]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 372522-46-8 HCAPLUS

CN Piperidine, 1,1',1''-[(2,4,6-trimethyl-1,3,5-benzenetriyl)tris[methyleneoxy(1-phenyl-2,1-

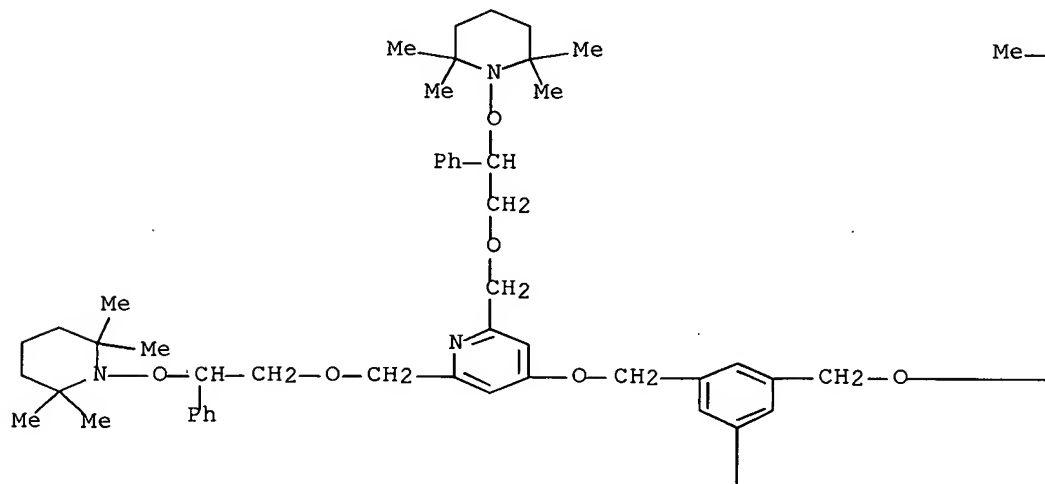
ethanediyl)oxy]]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

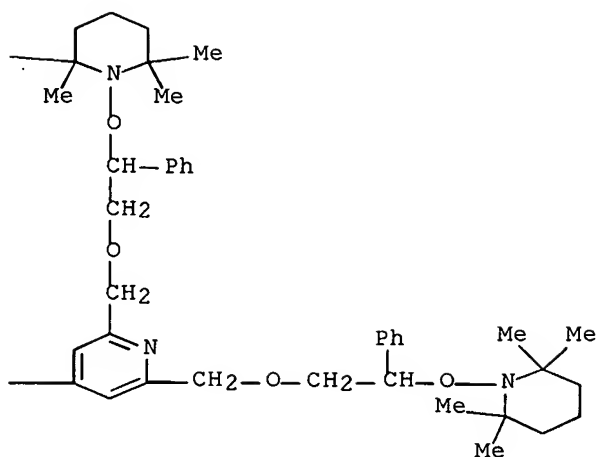


RN 372522-47-9 HCAPLUS

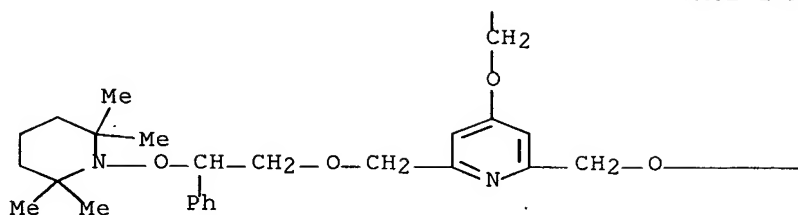
CN Pyridine, 4,4',4''-[1,3,5-benzenetriyltris(methyleneoxy)]tris[2,6-bis[[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethoxy)methyl]- (9CI) (CA INDEX NAME)

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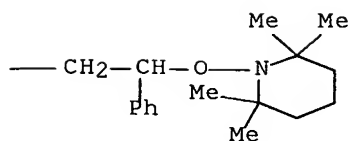




PAGE 2-A



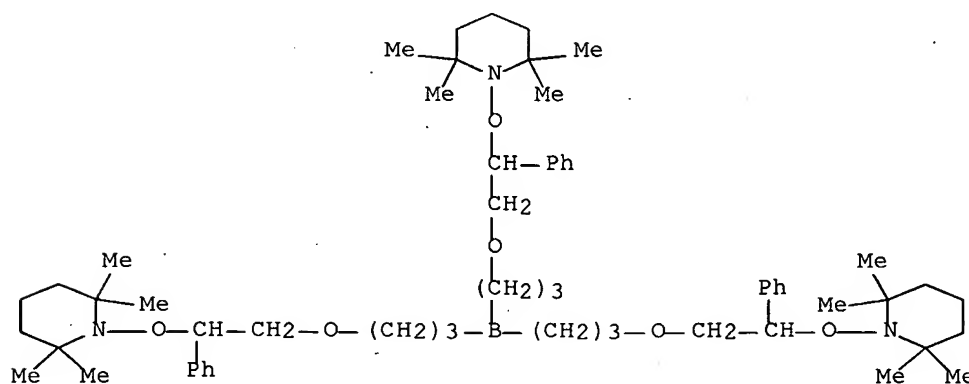
PAGE 2-B



- CC 35-3 (Chemistry of Synthetic High **Polymers**)
ST polystyrene multiarm living controlled radical polymn; TEMPO based **catalyst** multiarm polystyrene; star branched polystyrene TEMPO deriv **catalyst**
IT Polymerization **catalysts**
(synthesis of three- and six-arm polystyrene via living/controlled free radical polymerization)
IT 18226-42-1, 1,3,5-Tris(bromomethyl)benzene 161776-41-6
(in **catalyst** preparation; synthesis of three- and six-arm

polystyrene via living/controlled free radical polymerization)
 IT 372522-45-7P 372522-46-8P 372522-47-9P
 (synthesis of three- and six-arm polystyrene via living/controlled
 free radical polymerization)
 REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L69 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2001:208762 HCAPLUS Full-text
 DOCUMENT NUMBER: 135:5896
 TITLE: Synthesis of poly(methylene-b-styrene) by
 sequential living polymerization
 AUTHOR(S): Zhou, Xian-Zhi; Shea, Kenneth J.
 CORPORATE SOURCE: Department of Chemistry, University of California
 Irvine, Irvine, CA, 92697-2025, USA
 SOURCE: Macromolecules (2001), 34(9), 3111-3114
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 23 Mar 2001
 AB Poly homologation reaction for the synthesis of poly(methylene-b- styrene)
 block copolymers was considered. A series of block copolymers were prepared
 by the hydroboration-poly homologation. Control over the chain length of the
 polymethylene block was achieved by adjusting the initial molar ratio of ylide
 to organoborane.
 IT 341968-37-4P
 (borane; synthesis of poly(methylene-b-styrene) by sequential
 living polymerization)
 RN 341968-37-4 HCAPLUS
 CN Piperidine, 1,1',1''-[borylidynetris[3,1-propanediyl]oxy(1-phenyl-2,1-
 ethanediyl)oxy]]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



CC 35-4 (Chemistry of Synthetic High Polymers)
 IT 341968-37-4P
 (borane; synthesis of poly(methylene-b-styrene) by sequential
 living polymerization)
 IT 161776-41-6P
 (initiator; synthesis of poly(methylene-b-styrene) by
 sequential living polymerization)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L69 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:31452 HCAPLUS Full-text
DOCUMENT NUMBER: 134:101275
TITLE: Preparation of mono and multifunctional
alkoxyamines for forming nitroxyl radical
initiators and regulators useful in the
preparation of polymers with narrow polydispersity
INVENTOR(S): Kramer, Andreas; Nesvadba, Peter; Zink,
Marie-Odile; Wunderlich, Wiebke
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 74 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001002345	A2	20010111	WO 2000-EP5899	20000626
WO 2001002345	A3	20010719		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,			
	CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,			
	HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,			
	LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL,			
	PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA,			
	UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,			
	CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,			
	BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
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EP 1189875	A2	20020327	EP 2000-951302	20000626
EP 1189875	B1	20040804		
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JP 2003503474	T	20030128	JP 2001-507787	20000626
AT 272610	T	20040815	AT 2000-951302	20000626
US 6875831	B1	20050405	US 2001-19618	20011220
PRIORITY APPLN. INFO.:			EP 1999-810567	A 19990702
			WO 2000-EP5899	W 20000626

OTHER SOURCE(S): MARPAT 134:101275

ED Entered STN: 12 Jan 2001

AB The title alkoxyamines especially useful for the living polymerization of
unsatd. monomers or/and oligomers giving polymers with good conversion are
compsds. bearing groups which can liberate stable free nitroxyl radicals of
specific structures.

IT 319457-98-2P 319457-99-3P 319458-00-9P
319458-01-0P 319458-02-1P 319458-05-4P
319458-06-5P 319458-07-6P 319458-09-8P
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319458-24-7P 319458-27-0P 319458-29-2P
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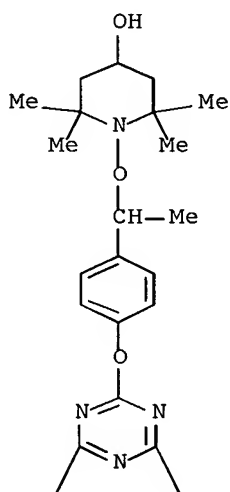
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(initiator; preparation of mono and multifunctional alkoxyamines as initiators for free radical polymerization with narrow polydispersity)

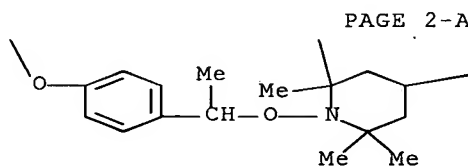
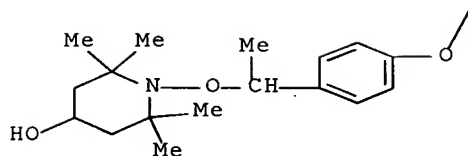
RN 319457-98-2 HCAPLUS

CN 4-Piperidinol, 1,1',1''-[1,3,5-triazine-2,4,6-triyltris(oxy-4,1-phenyleneethylideneoxy)]tris[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



Me



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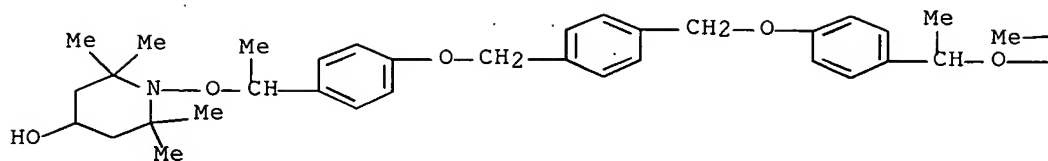
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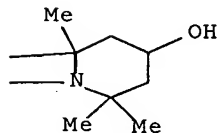
RN 319457-99-3 HCAPLUS

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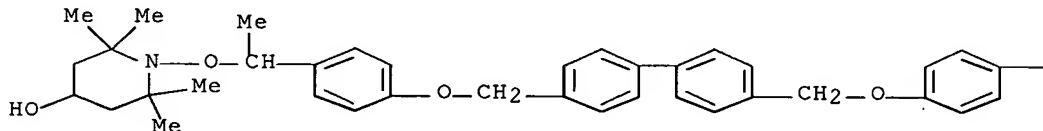
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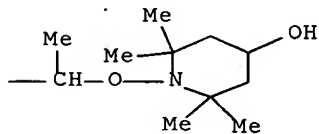
RN 319458-00-9 HCAPLUS

CN 4-Piperidinol, 1,1'-[[1,1'-biphenyl]-4,4'-diylbis(methyleneoxy-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]

PAGE 1-A



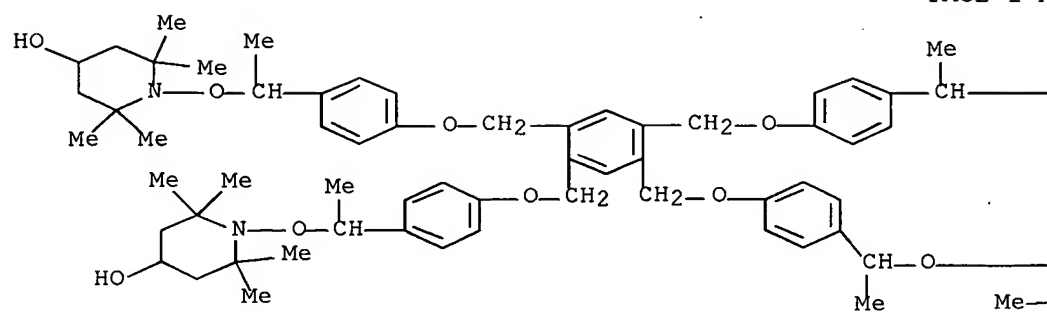
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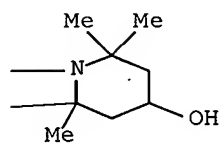
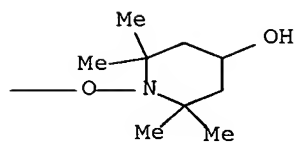
RN 319458-01-0 HCAPLUS

CN 4-Piperidinol, 1,1',1'',1'''-[1,2,4,5-benzenetetrayltetrakis(methyleneoxy-4,1-phenyleneethylideneoxy)]tetrakis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]

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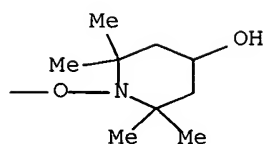
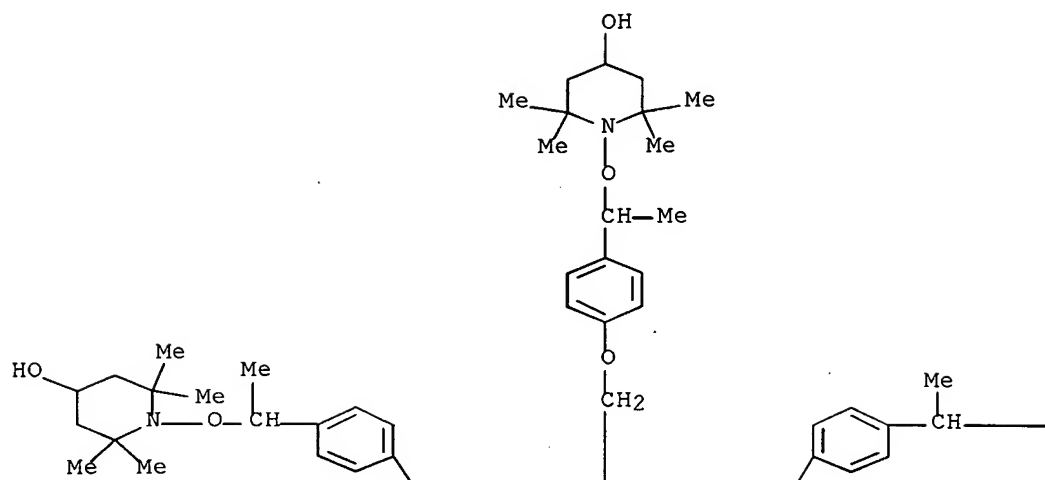


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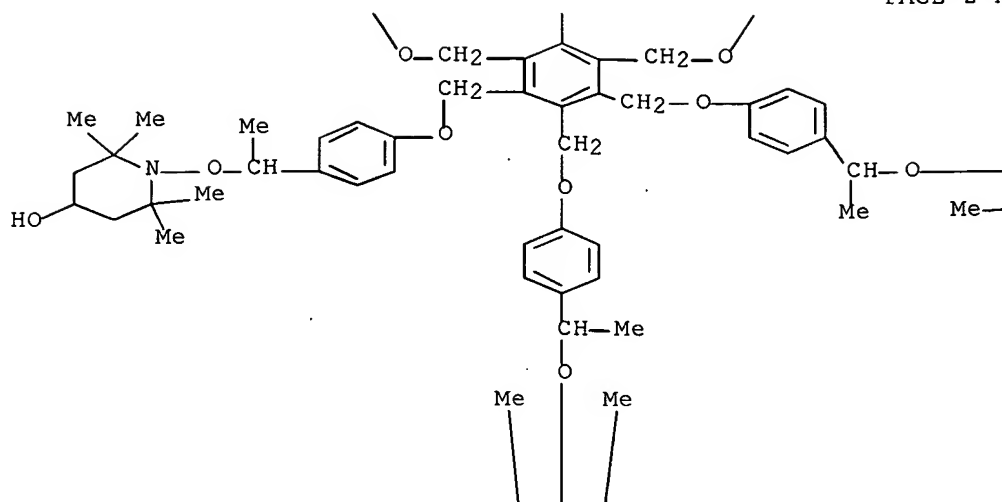


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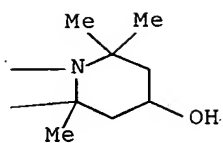
CN 4-Piperidinol, 1,1',1'',1''',1'''',1'''''-[1,2,3,4,5,6-benzenhexaylhexakis(methyleneoxy-4,1-phenyleneethylideneoxy)]hexakis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]



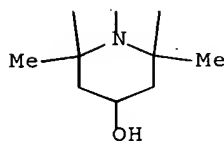
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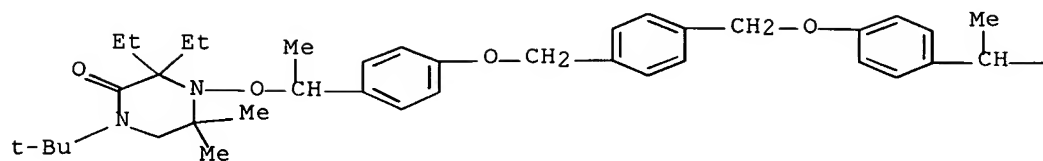


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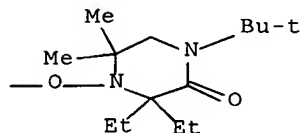


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 CN Piperazinone, 4,4'-[1,4-phenylenebis(methyleneoxy-4,1-phenyleneethylenedioxy)]bis[1-(1,1-dimethylethyl)-3,3-diethyl-5,5-dimethyl- (9CI) (CA INDEX NAME)

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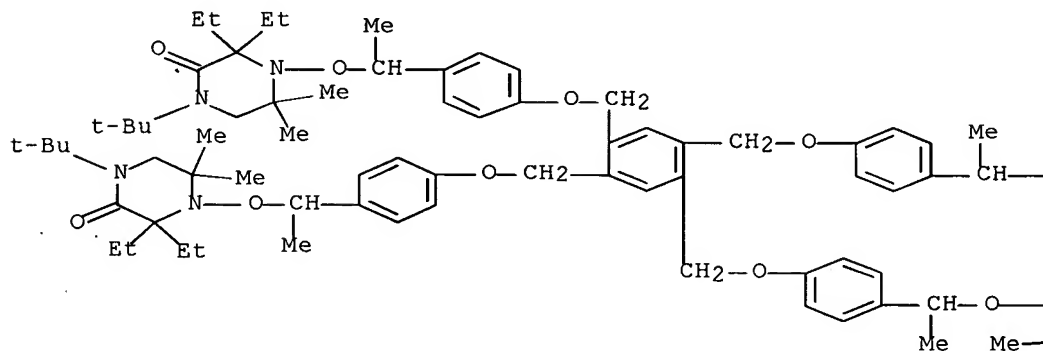
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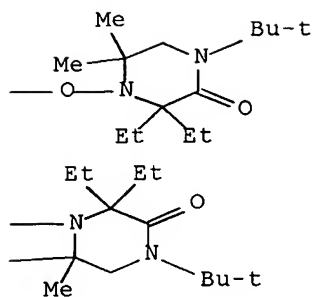


RN 319458-06-5 HCAPLUS

CN Piperazinone, 4,4',4'',4'''-[1,2,4,5-benzenetetrayltetrakis(methyleneoxy-4,1-phenyleneethylideneoxy)]tetrakis[1-(1,1-dimethylethyl)-3,3-diethyl-5,5-dimethyl- (9CI) (CA INDEX NAME)

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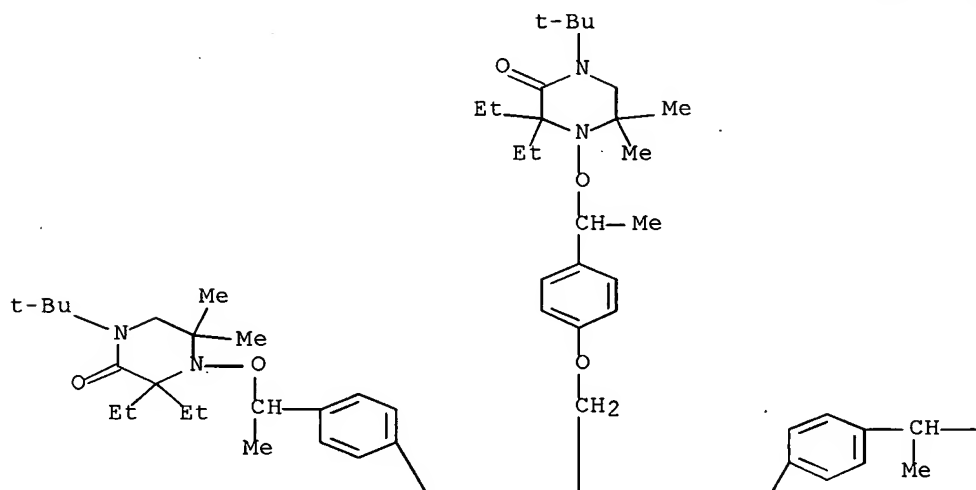


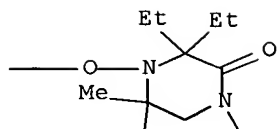


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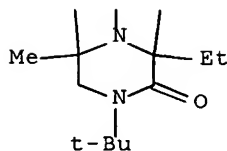
CN Piperazinone, 4,4',4'',4''',4''''',4''''''-[1,2,3,4,5,6-benzenehexaylhexakis(methyleneoxy-4,1-phenyleneethylideneoxy)]hexakis[1-(1,1-dimethylethyl)-3,3-diethyl-5,5-dimethyl- (9CI) (CA INDEX NAME)

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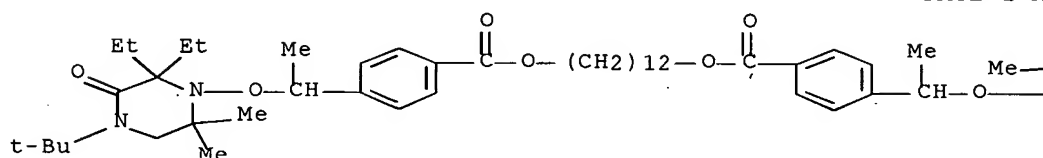
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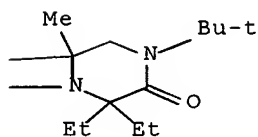
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CN Benzoic acid, 4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]-, 1,12-dodecanediyl ester (9CI) (CA INDEX NAME)

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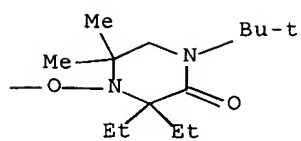
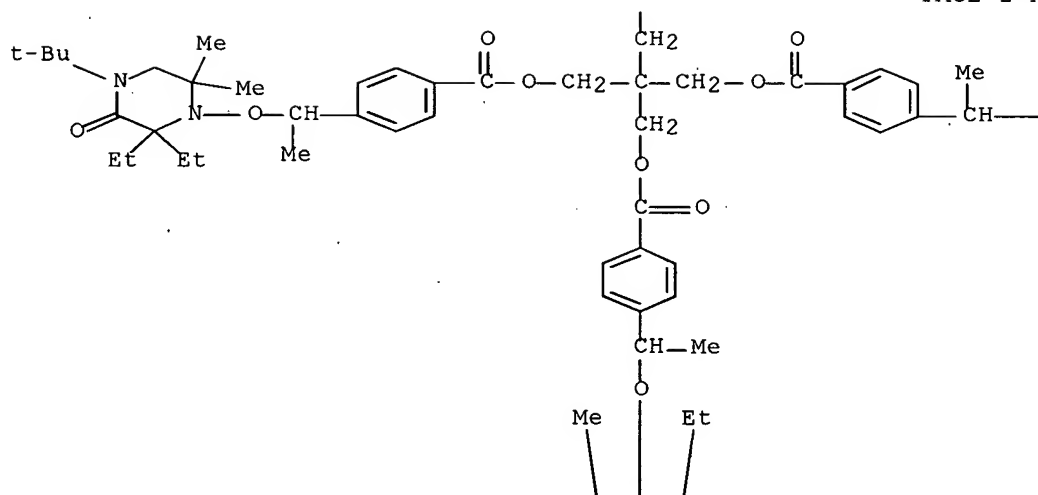
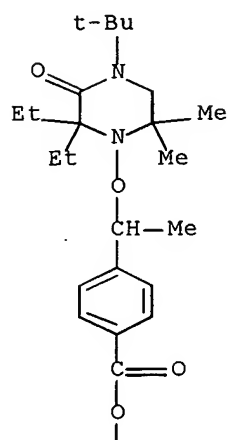


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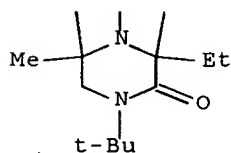


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CN Benzoic acid, 4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]-, 2,2-bis[[[4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]benzoyl]oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



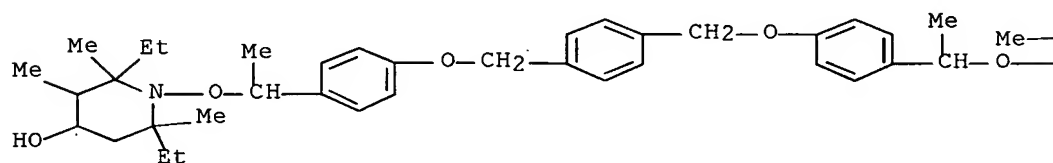
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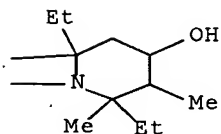
RN 319458-13-4 HCAPLUS

CN 4-Piperidinol, 1,1'-[1,4-phenylenebis(methyleneoxy-4,1-phenyleneethylideneoxy)]bis[2,6-diethyl-2,3,6-trimethyl- (9CI) (CA INDEX NAME)

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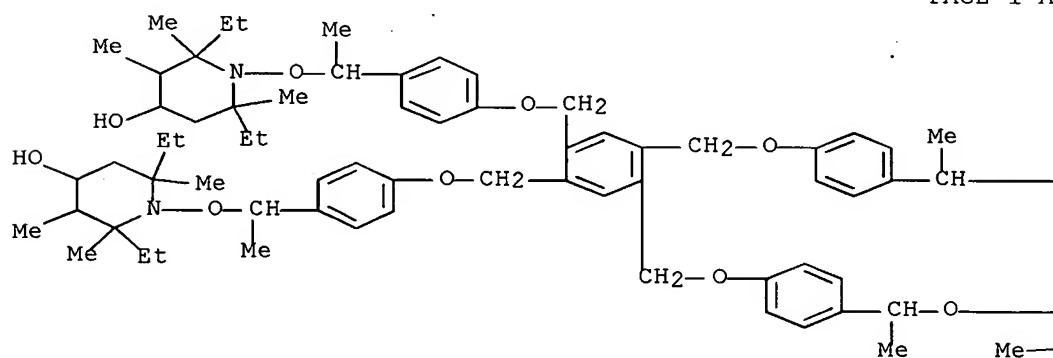
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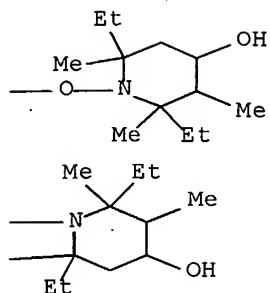
RN 319458-14-5 HCAPLUS

CN 4-Piperidinol, 1,1',1'',1'''-[1,2,4,5-benzenetetrayltetrakis(methyleneoxy-4,1-phenyleneethylideneoxy)]tetrakis[2,6-diethyl-2,3,6-trimethyl- (9CI) (CA INDEX NAME)]

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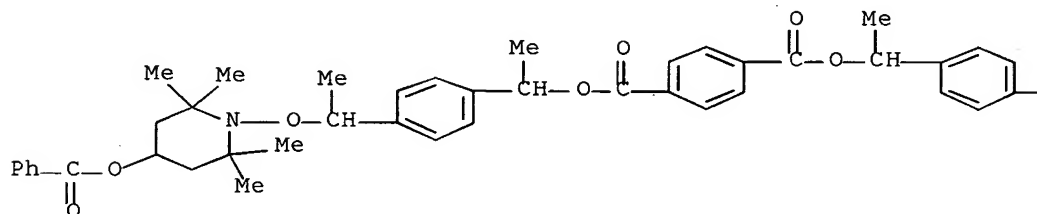
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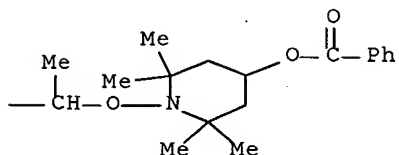
RN 319458-18-9 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[1-[4-[1-[[4-(benzoyloxy)-2,2,6,6-tetramethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

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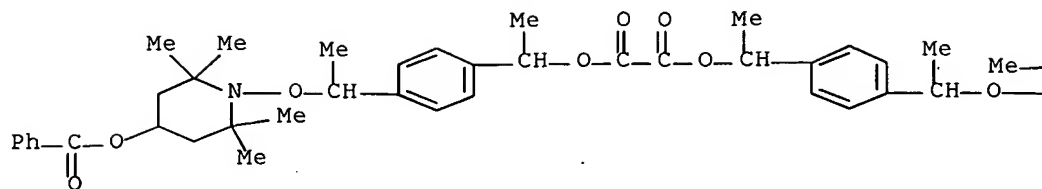
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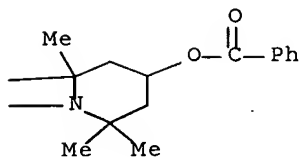
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CN Ethanedioic acid, bis[1-[4-[1-[[4-(benzoyloxy)-2,2,6,6-tetramethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

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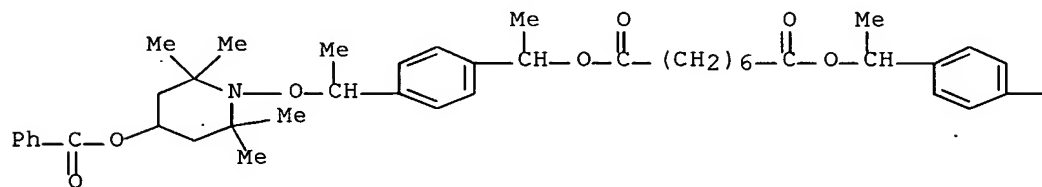


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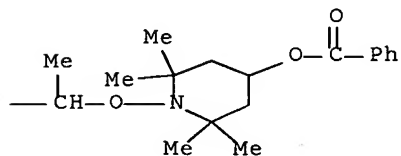


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 CN Octanedioic acid, bis[1-[4-[1-[[4-(benzoyloxy)-2,2,6,6-tetramethyl-1-piperidinyloxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

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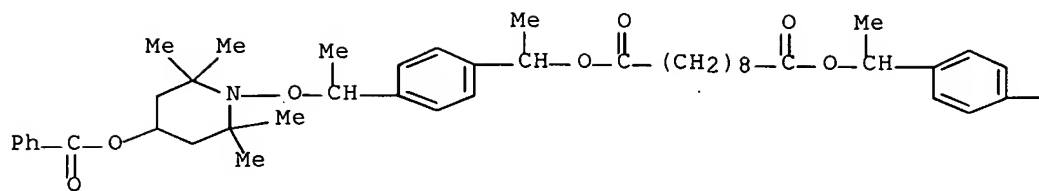


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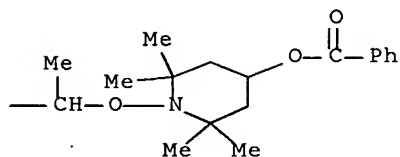


RN 319458-21-4 HCAPLUS
 CN Decanedioic acid, bis[1-[4-[1-[[4-(benzoyloxy)-2,2,6,6-tetramethyl-1-piperidinyloxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

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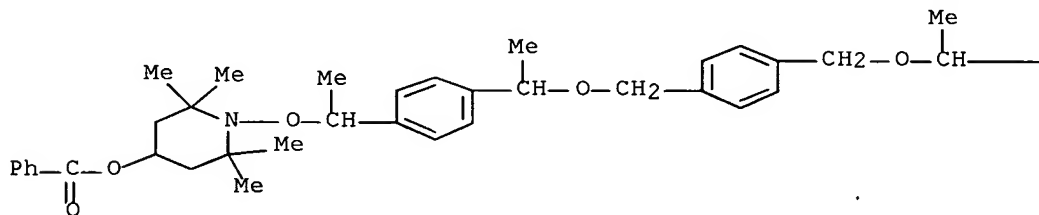
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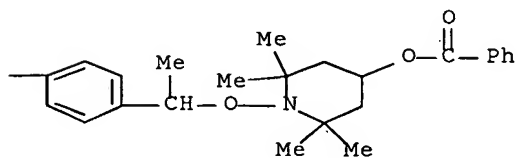
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CN 4-Piperidinol, 1,1'-[1,4-phenylenebis(methyleneoxyethylidene-4,1-phenyleneethylideneoxy)]bis[2,2,6,6-tetramethyl-, dibenzoate (ester) (9CI) (CA INDEX NAME)

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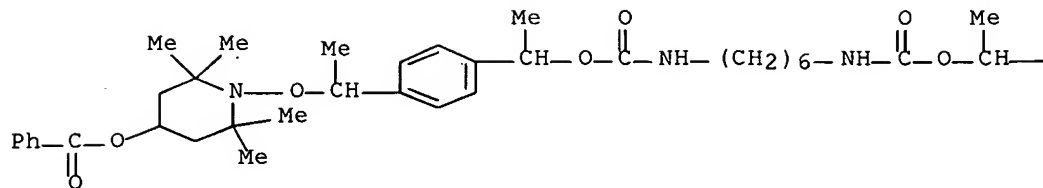
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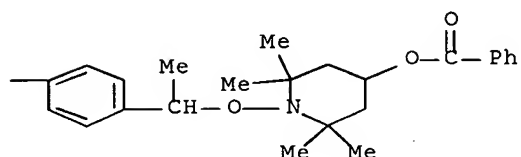
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CN Carbamic acid, 1,6-hexanediylbis-, bis[1-[4-[1-[4-(benzoyloxy)-2,2,6,6-tetramethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

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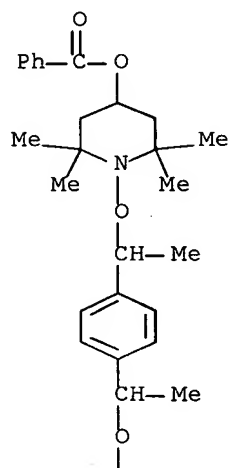


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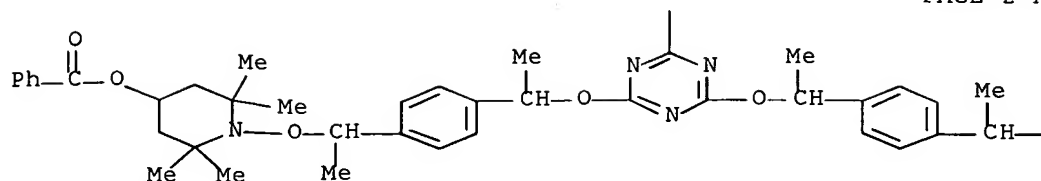


RN 319458-24-7 HCAPLUS
 CN 4-Piperidinol, 1,1',1''-[1,3,5-triazine-2,4,6-triyltris(oxyethylidene-4,1-phenyleneethylideneoxy)]tris[2,2,6,6-tetramethyl-, tribenzoate (ester) (9CI) (CA INDEX NAME)

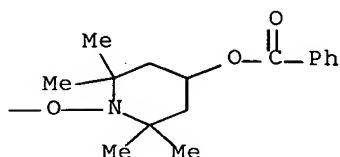
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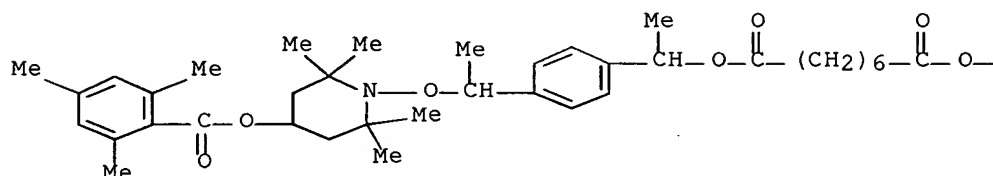
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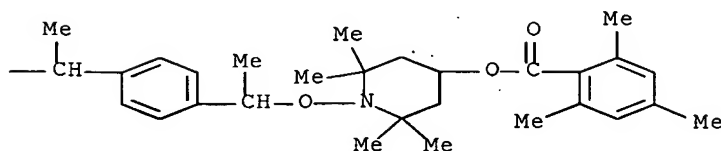
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CN Octanedioic acid, bis[1-[4-[1-[[2,2,6,6-tetramethyl-4-[(2,4,6-trimethylbenzoyl)oxy]-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

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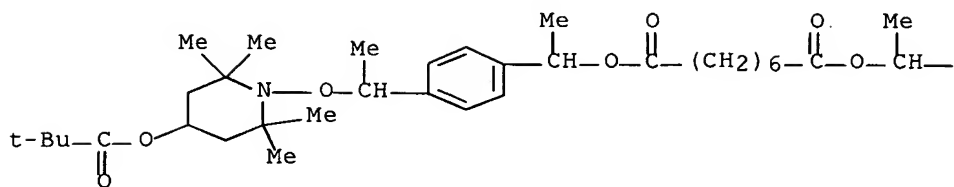
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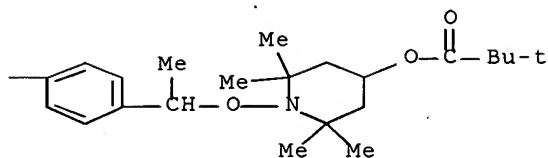
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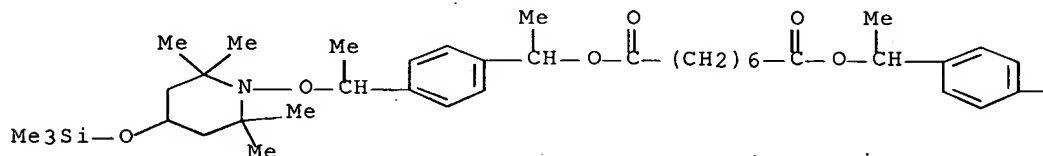
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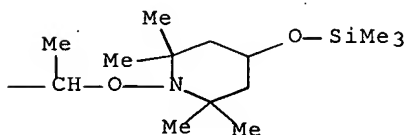
RN 319458-32-7 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[(2,2,6,6-tetramethyl-4-
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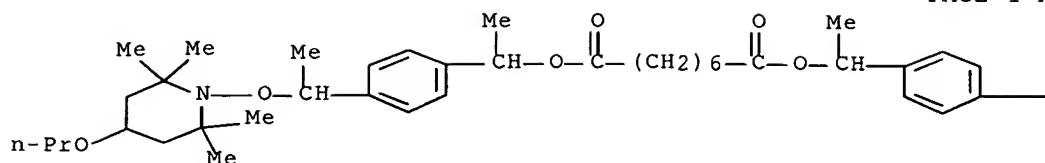
PAGE 1-B



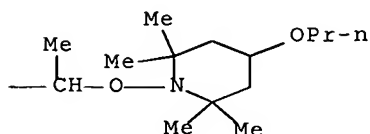
RN 319458-34-9 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[(2,2,6,6-tetramethyl-4-propoxy-1-
piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



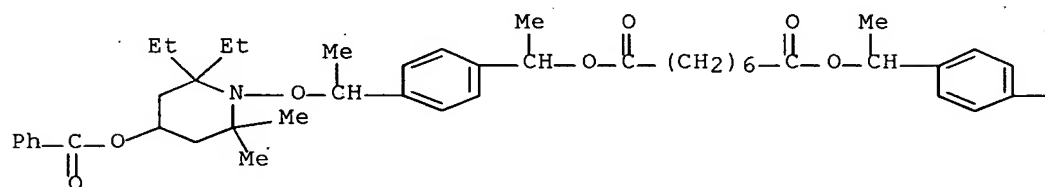
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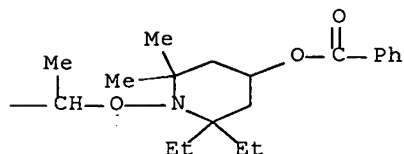
RN 319458-37-2 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[[4-(benzoyloxy)-2,2-diethyl-6,6-dimethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



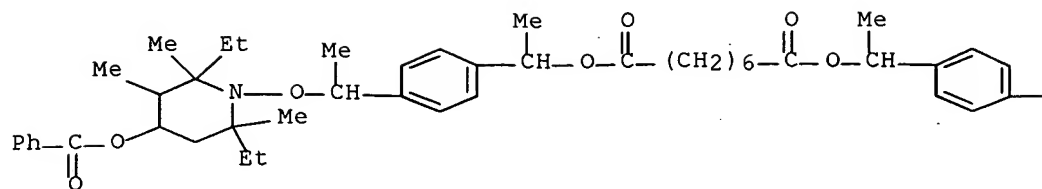
PAGE 1-B



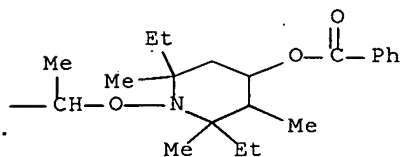
RN 319458-40-7 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[[4-(benzoyloxy)-2,6-diethyl-2,3,6-trimethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



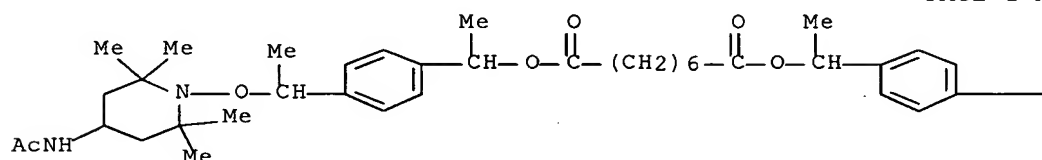
PAGE 1-B



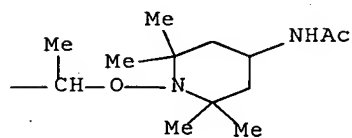
RN 319458-43-0 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[[4-(acetylamino)-2,2,6,6-tetramethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



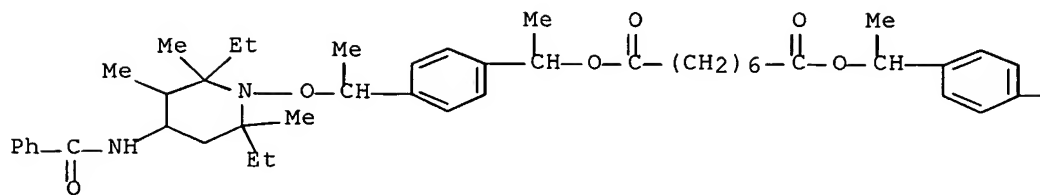
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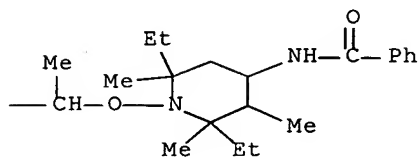
RN 319458-46-3 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[[4-(benzoylamino)-2,6-diethyl-2,3,6-trimethyl-1-piperidinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



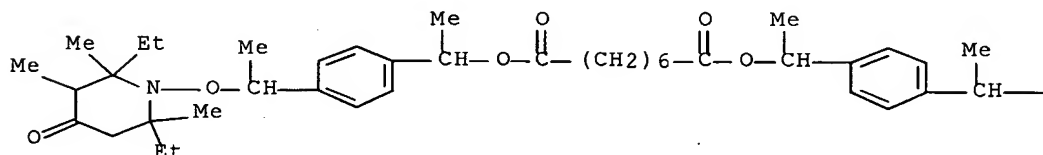
PAGE 1-B



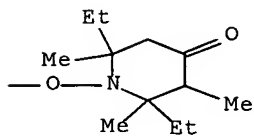
RN 319458-49-6 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[(2,6-diethyl-2,3,6-trimethyl-4-oxo-1-piperidinyl)oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



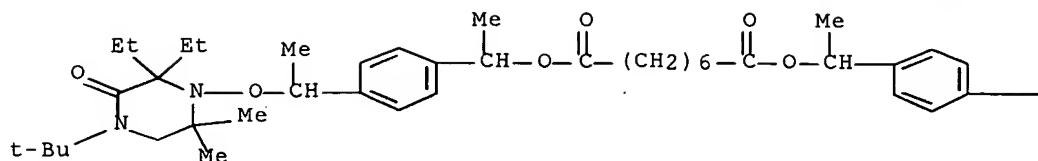
PAGE 1-B



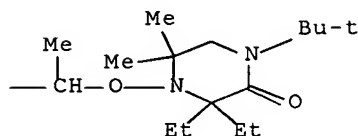
RN 319458-51-0 HCAPLUS

CN Octanedioic acid, bis[1-[4-[1-[[4-(1,1-dimethylethyl)-2,2-diethyl-6,6-dimethyl-3-oxo-1-piperazinyl]oxy]ethyl]phenyl]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



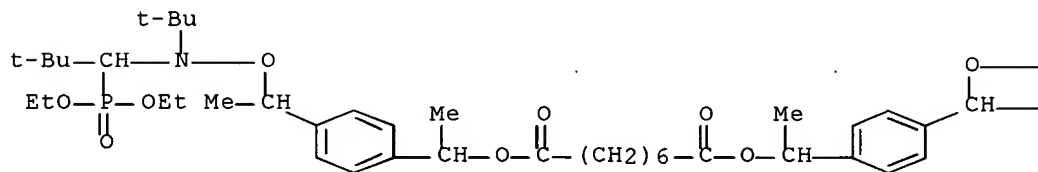
PAGE 1-B



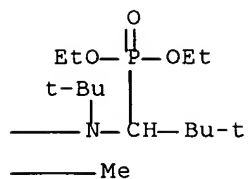
RN 319458-54-3 HCAPLUS

CN Octanedioic acid, bis[1-[4-[3,4-bis(1,1-dimethylethyl)-5-ethoxy-1-methyl-5-oxido-2,6-dioxo-3-aza-5-phosphaoct-1-yl]phenyl]ethyl] ester
(9CI) (CA INDEX NAME)

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IC ICM C07C239-20

ICS C07D211-94; C08F004-00

CC 35-3 (Chemistry of Synthetic High Polymers)

ST alkoxyamine multifunctional nitroxyl **initiator** radical
living polymn; narrow polydispersity radical living polymn; mol wt
distribution living polymn nitroxyl radical **initiator**

- IT Amines, preparation
(alkoxylated, derivs., **initiator**; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT Polymerization
(living, radical; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT Polymerization **catalysts**
(living; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT Nitroxides
(preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT Polymerization **catalysts**
(radical; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT 243972-13-6P 243972-14-7P 243972-16-9P 264280-52-6P
319457-95-9P 319457-96-0P 319457-97-1P 319458-04-3P
319458-08-7P 319458-11-2P 319458-12-3P 319458-15-6P
319458-16-7P 319458-17-8P 319458-25-8P 319458-26-9P
319458-28-1P 319458-30-5P 319458-31-6P 319458-33-8P
319458-35-0P 319458-36-1P 319458-38-3P 319458-39-4P
319458-41-8P 319458-42-9P 319458-44-1P 319458-45-2P
319458-47-4P 319458-48-5P 319458-50-9P 319458-52-1P
319458-53-2P
(**initiator**/intermediate for multifunctional **initiator**; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT 264280-51-5P 319457-98-2P 319457-99-3P
319458-00-9P 319458-01-0P 319458-02-1P
319458-03-2P 319458-05-4P 319458-06-5P
319458-07-6P 319458-09-8P 319458-10-1P
319458-13-4P 319458-14-5P 319458-18-9P
319458-19-0P 319458-20-3P 319458-21-4P
319458-22-5P 319458-23-6P 319458-24-7P
319458-27-0P 319458-29-2P 319458-32-7P
319458-34-9P 319458-37-2P 319458-40-7P
319458-43-0P 319458-46-3P 319458-49-6P
319458-51-0P 319458-54-3P
(**initiator**; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT 9003-49-0P, Butyl acrylate homopolymer 9003-53-6P, Polystyrene
(linear or star-shaped; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)
- IT 106-95-6, Allyl bromide, reactions 108-77-0, Cyanuric chloride
115-77-5, Pentaerythritol, reactions 535-11-5, Ethyl
2-bromopropionate 623-24-5, α,α' -Dibromo-p-xylene
814-68-6, Acryloyl chloride 937-30-4 2226-96-2,
4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl 3095-73-6,
Hexakis(bromomethyl)benzene 3245-23-6, 4-Ethylphenyl acetate
5675-51-4, 1,12-Dodecanediol 15442-91-8, 1,2,4,5-
Tetrakis(bromomethyl)benzene 20248-86-6, 4,4'-
Bis(bromomethyl)biphenyl 61745-37-7 264279-93-8

(reactant for **initiator**; preparation of mono and multifunctional alkoxyamines as **initiators** for free radical polymerization with narrow polydispersity)

L69 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:279746 HCAPLUS Full-text

DOCUMENT NUMBER: 130:325501

TITLE: Procedure for manufacture of block copolymers with controlled architecture via functional radical **initiators** and living radical polymerization, and **initiator**

INVENTOR(S): compositions, and corresponding copolymers
Bertin, Denis; Destarac, Mathias; Boutevin, Bernard

PATENT ASSIGNEE(S): Elf Atochem S.A., Fr.

SOURCE: Eur. Pat. Appl., 34 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 911350	A1	19990428	EP 1998-402624	19981022
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
FR 2770219	A1	19990430	FR 1997-13383	19971024
EP 1277771	A2	20030122	EP 2002-78512	19981022
R: AT, BE, DE, ES, FR, GB, IT, NL, SE, FI				
EP 1288236	A2	20030305	EP 2002-78511	19981022
R: AT, BE, DE, ES, FR, GB, IT, NL, SE, FI				
PRIORITY APPLN. INFO.:			FR 1997-13383	A 19971024
			EP 1998-402624	A3 19981022

OTHER SOURCE(S): MARPAT 130:325501

ED Entered STN: 06 May 1999

AB The first step in the procedure is thermally induced radical polymerization of at least one monomer M1 = methacrylic monomer and an **initiator** X-A-Y, where X and Y = monovalent living radical groups and A = divalent linking group capable of radical polymerization and radical-reactive groups, e.g., diazo -N=N-, peroxide -O-O-, to obtain a living polymer X-D (or Y-E)PM1-T where D = is a free radical moiety and T = terminal group. The **initiator** is obtained by reaction of 4,4'-Azobis[4-cyanovaleric acid] and end-functionalized alcs. or by reaction of H2O2 and an acid chloride containing groups X or Y. In the second step, living radical polymerization of the polymer and at least one other monomer, M2, is carried out, either by photochem. **activation** or by chain transfer control, to obtain a multifunctional macroinitiator that can be used in yet another polymerization step with at least one monomer M3; M2 and M3 are selected from vinyl, allyl, vinylidene, diene, or olefinic monomers. The second step is carried out in presence of transition metal complex **catalysts**, preferably CuZ'/L where Z = halogen, hexafluorophosphate, acetate and L = α -diimine ligand. Thus, a triblock copolymer, PS-PABu-PS was obtained; the **initiator** was prepared from 4,4'-Azobis[4-cyanovaleric acid] and trichloroethanol and used in radical polymerization of Bu acrylate at 130° to obtain the living poly(Bu acrylate) of average mol. weight 8700 g/mol and degree of polymerization of 64. The living polymer was then mixed with styrene and CuCl and bipyridine as radical polymerization **catalyst** system; the triblock copolymer was isolated from the reaction medium and has average mol.

weight of 92,600 g/mol, of which 8700 g/mol correspond to the poly(Bu acrylate) sequence and 45,000 to the polystyrene sequences.

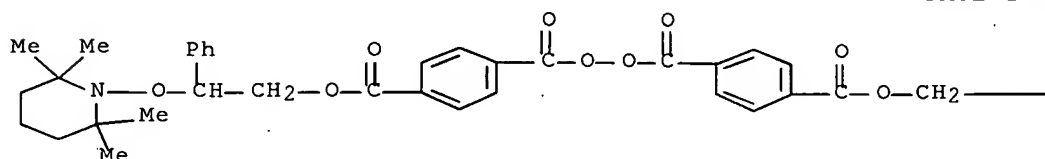
IT 223668-08-4P

(peroxide **initiator**; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)

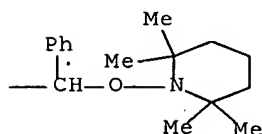
RN 223668-08-4 HCAPLUS

CN Benzoic acid, 4,4'-(dioxycarbonyl)bis-, bis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl] ester (9CI) (CA INDEX NAME)

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IC ICM C08F293-00

ICS C07C255-65

CC 35-4 (Chemistry of Synthetic High **Polymers**)

IT Polymerization

Polymerization

(block, photochem.; functional radical **initiators** in

sequential radical and living radical polymerization for manufacture of block

copolymers with controlled architecture)

IT Polymerization

Polymerization **catalysts**

(living; functional radical **initiators** in sequential

radical and living radical polymerization for manufacture of block copolymers

with controlled architecture)

IT Polymerization **catalysts**

(photopolymn., block; functional radical **initiators** in

sequential radical and living radical polymerization for manufacture of block

copolymers with controlled architecture)

IT Polymerization

Polymerization **catalysts**

(radical; functional radical **initiators** in sequential

radical and living radical polymerization for manufacture of block copolymers

with controlled architecture)

IT 213546-64-6P 223668-06-2P

- (azobis **initiator**; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 106399-43-3P, Butadiene-methyl methacrylate block copolymer
725713-28-0P
(diblock; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 100-20-9, 1,4-Benzenedicarbonyl dichloride 115-20-8, Trichloroethanol 2638-94-0, 4,4'-Azobis[4-cyanovaleric acid] 7722-84-1, Hydrogen peroxide (H₂O₂), reactions 30887-99-1 161776-41-6, 2-Phenyl-2-[(2,2,6,6-tetramethylpiperidino)oxy]ethanol
(functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 9003-49-0P, Poly(butyl acrylate) 9011-14-7P, Poly(methyl methacrylate)
(functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 223668-07-3P
(intermediate; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 223668-08-4P
(peroxide **initiator**; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 7758-89-6, Copper chloride (CuCl) 37275-48-2, Bipyridine
(radical polymerization **catalyst** system; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)
- IT 110772-34-4P, Butyl acrylate-styrene block copolymer 705279-67-0P
(triblock; functional radical **initiators** in sequential radical and living radical polymerization for manufacture of block copolymers with controlled architecture)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1998:572917 HCAPLUS Full-text
 DOCUMENT NUMBER: 129:276766
 TITLE: Soluble supports tailored for organic synthesis: parallel polymer synthesis via sequential normal/living free radical processes
 AUTHOR(S): Gravert, Dennis J.; Datta, Anita; Wentworth, Paul, Jr.; Janda, Kim D.
 CORPORATE SOURCE: Department of Chemistry and The Skaggs Institute for Chemical Biology, Scripps Research Institute, La Jolla, CA, 92037, USA
 SOURCE: Journal of the American Chemical Society (1998), 120(37), 9481-9495
 CODEN: JACSAT; ISSN: 0002-7863
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 10 Sep 1998

AB To expand the availability and solubility range of polymer supports for liquid-phase organic synthesis (LPOS) we have applied a sequence of normal and "living" free radical polymerization to generate a library of block copolymers possessing either block or graft architecture with **initiators** and a diverse set of vinyl monomers. The structure, mol. weight, and polydispersity (PD) of the individual library members have been determined by size exclusion chromatog. (SEC), ¹H and ¹³C NMR, and as a function of the solubility of each polymer in a range of solvents. One copolymer, polyBS-DS (Mn = 17 000, PD = 1.54) derived from 4-tert-butylstyrene (BS), 3,4-dimethoxystyrene (DS) has a solubility profile [soluble in toluene, THF (THF), ether, acetone and methylene chloride (DCM), insol. in methanol and water] that is different from the present polymer of choice for LPOS, poly(ethylene) glycol (PEG), and was studied in some detail as a new support in LPOS. The α-nitrile groups of polyBS-DS are reduced smoothly with LiAlH₄ in THF to give the amino functionalized copolymer (0.14 mmol g⁻¹ of amino groups based on a quant. ninhydrin anal.). Kinetic studies have revealed that derivatization of the amino groups of the copolymer with 4-dimethylaminocinnamaldehyde occurs at a comparable rate to a solution counterpart (k_{poly22} = 0.49 L mol⁻¹ h⁻¹ vs kaminohexane = 0.69 L mol⁻¹ h⁻¹). Following reaction with N-glutaroyl-(2S,4S)-4-diphenylphosphino- 2-[(diphenylphosphino)methyl]pyrrolidine and exchange of Rh(I), the resulting phosphine containing copolymer, catalyzes the enantioselective hydrogenation of 2-N-acetamidoacrylic acid to N-acetylalanine in THF. An 87% enantiomeric excess (ee) of (S)-N-acetylalanine is obtained, comparable to that observed with a homogeneous phosphine ligand. This work highlights the power of a parallel polymer synthesis strategy, from conception to application, for the generation of polymers possessing unique solubility profiles and functionality which can serve as novel supports in LPOS.

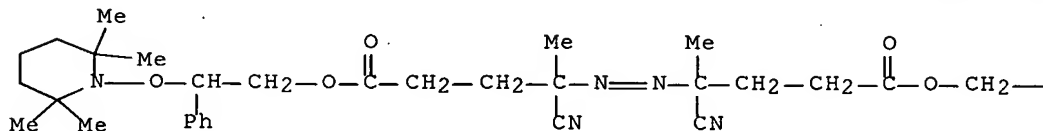
IT 188119-33-7 203382-60-9

(catalyst for; parallel polymer preparation via sequential normal/living free radical polymerization)

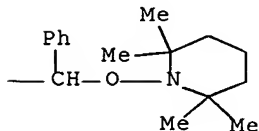
RN 188119-33-7 HCAPLUS

CN Pentanoic acid, 4,4'-azobis[4-cyano-, bis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl] ester (9CI) (CA INDEX NAME)

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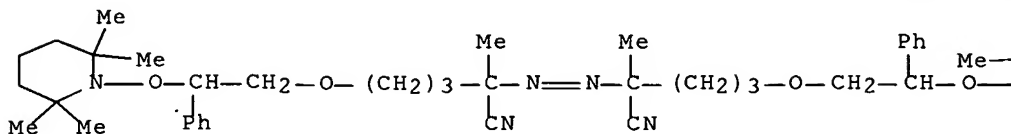


RN 203382-60-9 HCAPLUS

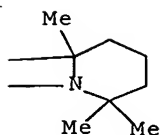
CN Pentanenitrile, 2,2'-azobis[2-methyl-5-[2-phenyl-2-[(2,2,6,6-

tetramethyl-1-piperidinyloxy]ethoxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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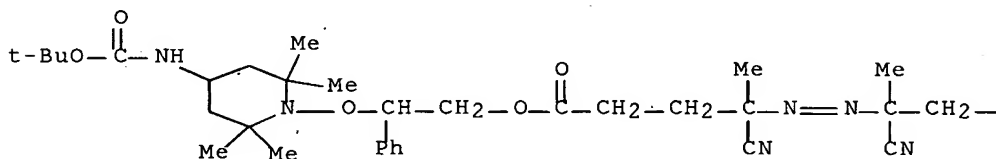
IT 213994-38-8P

(catalyst for; parallel polymer preparation via sequential normal/living free radical polymerization)

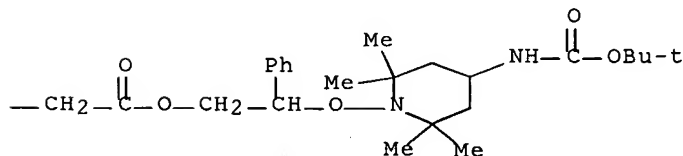
RN 213994-38-8 HCAPLUS

CN Pentanoic acid, 4,4'-azobis[4-cyano-, bis[2-[[4-[[1,1-dimethylethoxy)carbonyl]amino]-2,2,6,6-tetramethyl-1-piperidinyloxy]-2-phenylethyl] ester (9CI) (CA INDEX NAME)

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CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 67

ST dimethoxystyrene butylstyrene block polymer catalyst support

IT 188119-33-7 203382-60-9

- (**catalyst** for; parallel polymer preparation via sequential normal/living free radical polymerization)
- IT 213994-38-8P
(**catalyst** for; parallel polymer preparation via sequential normal/living free radical polymerization)
- IT 920-46-7, Methacryloyl chloride 4693-47-4 14691-88-4 24424-99-5,
Di-tert-butyl dicarbonate 161776-41-6
(in preparation of **catalyst**; parallel polymer preparation via sequential normal/living free radical polymerization)
- IT 213994-43-5P 213994-47-9P 213994-50-4P
(in preparation of **catalyst**; parallel polymer preparation via sequential normal/living free radical polymerization)
- IT 12092-47-6, μ -Dichloro-bis(1,5-cyclooctadiene)-dirhodium
213994-93-5D, reaction products with reduced and hydrogenated Bu styrene-dimethoxystyrene block copolymer
(in sequential normal/living free radical polymerization for polymer-supported **catalyst**)
- IT 61478-29-3
(in sequential normal/living free radical polymerization for polymer-supported **catalyst**)
- IT 213994-64-ODP, reduced with LiAlH₄, hydrogenated, derivs.
(sequential normal/living free radical polymerization for polymer-supported **catalyst**)
- IT 5429-56-1
(sequential normal/living free radical polymerization for polymer-supported **catalyst** for hydrogenation)
- IT 97-69-8P
(sequential normal/living free radical polymerization for polymer-supported **catalyst** for hydrogenation)

REFERENCE COUNT: 85 THERE ARE 85 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:532628 HCAPLUS Full-text

DOCUMENT NUMBER: 127:221034

TITLE: Block Copolymer Preparation Using Sequential Normal/Living Radical Polymerization Techniques

AUTHOR(S): Li, I. Q.; Howell, B. A.; Dineen, M. T.; Kastl, P. E.; Lyons, J. W.; Meunier, D. M.; Smith, P. B.; Priddy, D. B.

CORPORATE SOURCE: Center for Applications in Polymer Science, Central Michigan University, Mount Pleasant, MI, 48859, USA

SOURCE: Macromolecules (1997), 30(18), 5195-5199
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 21 Aug 1997

AB Anionic and nitroxide-mediated (NM) radical polymerization works well for styrene but not for acrylates. We have overcome this problem and successfully prepared styrene-b-Bu acrylate (S-BA), styrene-b-Me methacrylate (S-MMA), styrene-b-isoprene (S-IP), and styrene-alt-acrylonitrile-b-isoprene (SAN-IP) polymers using a sequential normal/living radical polymerization scheme. Clear (S-IP and SAN-IP) to translucent (S-BA and S-MMA) films were obtained having microphase-separated polymer morphol. GPC studies and chemical digestion of the IP segments of S-IP and SAN-IP block copolymers confirmed their block structure. The sequential normal/living radical polymerization

approach provides a new route to synthesize block polymers that have previously proven very difficult to make.

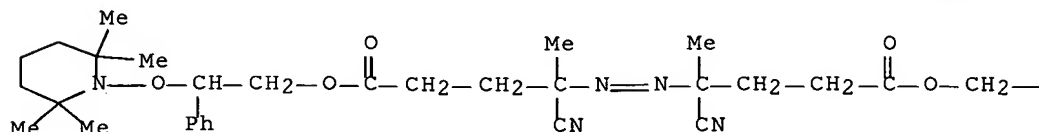
IT 188119-33-7P

(preparation of acrylic block copolymers using sequential normal/living radical polymerization **initiated** by AIBN and)

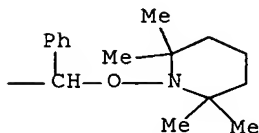
RN 188119-33-7 HCAPLUS

CN Pentanoic acid, 4,4'-azobis[4-cyano-, bis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyl)oxy]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

ST normal living sequential polymn acrylate methacrylate; isoprene acrylate styrene block copolymer prepn; nitroxide functional azo **initiator** acrylate polymn; translucent microphase sepd block copolymer synthesis; acrylonitrile isoprene styrene alternating block copolymer; SAN isoprene block copolymer prepn; polyacrylate macroinitiator isoprene styrene polymn

IT 17170-81-9 161776-41-6

(**initiator** synthesis; preparation of acrylic block copolymers using sequential normal/living radical polymerization)

IT 188119-33-7P

(preparation of acrylic block copolymers using sequential normal/living radical polymerization **initiated** by AIBN and)

IT 78-67-1, AIBN

(preparation of acrylic block copolymers using sequential normal/living radical polymerization **initiated** by nitroxide functional azo **initiator** and)

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L69 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:324791 HCAPLUS Full-text

DOCUMENT NUMBER: 127:5476

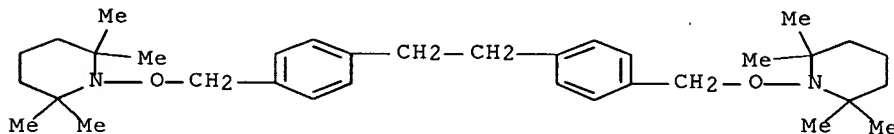
TITLE: Difunctional living free radical polymerization **initiators** for vinyl aromatic monomers

INVENTOR(S): Koster, Robert A.; Priddy, Duane B.; Li, Irene

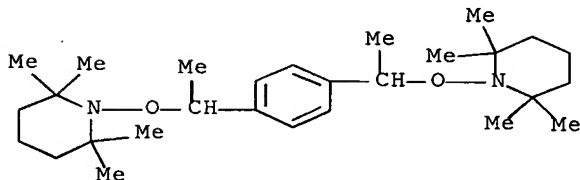
PATENT ASSIGNEE(S): Dow Chemical Co., USA
 SOURCE: U.S., 9 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5627248	A	19970506	US 1995-533799	19950926
US 5677388	A	19971014	US 1996-731216	19961008
PRIORITY APPLN. INFO.:			US 1995-533799	A3 19950926

OTHER SOURCE(S): MARPAT 127:5476
 ED Entered STN: 22 May 1997
 AB Vinyl aromatic monomers are polymerized in high conversion and low polydispersity using a difunctional nitroxyl **initiator** R1[-CR2R3-O-NR4R5]2; R1 = linking group; R2, R3 = H, alkyl, cycloalkyl, **activating** group, or alkyl bridging group; R4, R5 = alkyl, aryl, or C4-10-alkyl ring.
 IT **184646-29-5P 184646-30-8P**
 (free radical polymerization **initiators** for vinyl aromatic monomers)
 RN 184646-29-5 HCAPLUS
 CN Piperidine, 1,1'-[1,2-ethanediylbis(4,1-phenylenemethyleneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]



RN 184646-30-8 HCAPLUS
 CN Piperidine, 1,1'-[1,4-phenylenebis(ethylideneoxy)]bis[2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)]



IC ICM C08F002-00
 ICS C08F220-10; C08F012-08; B01J031-06
 INCL 526217000
 CC 35-3 (Chemistry of Synthetic High **Polymers**)
 Section cross-reference(s): 28, 67
 ST nitroxyl **catalyst** vinyl arom monomer; styrene polymn
 nitroxyl **catalyst**; piperidinyloxy styrene polymn

catalyst; radical polymn catalyst vinyl monomer

IT Polymerization **catalysts**
(radical, nitroxyl free radicals; free radical polymerization **initiators** for vinyl aromatic monomers)

IT 154554-67-3P **184646-29-5P 184646-30-8P**
(free radical polymerization **initiators** for vinyl aromatic monomers)

IT 95-78-3 105-05-5 1633-22-3 2564-83-2
(free radical polymerization **initiators** for vinyl aromatic monomers)

IT 9003-53-6P 121523-76-0P
(free radical polymerization **initiators** for vinyl aromatic monomers)

L69 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:224604 HCAPLUS Full-text

DOCUMENT NUMBER: 126:225616

TITLE: Block copolymer preparation using normal/living tandem polymerization

AUTHOR(S): Li, I. Q.; Howell, B. A.

CORPORATE SOURCE: Cent. Appli. Polym. Sci., Central Michigan Univ.,
nmunt Pleasant, MI, 48859, USA

SOURCE: Polymer Preprints (American Chemical Society,
Division of Polymer Chemistry) (1997), 38(1),
762-763
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 07 Apr 1997

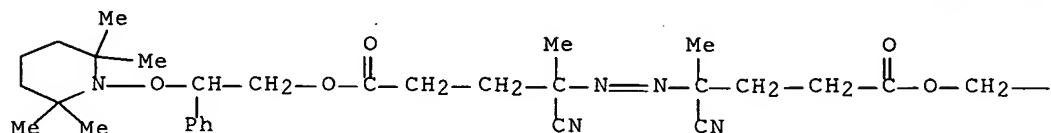
AB Normal/living sequential polymerization of Bu acrylate and styrene yields translucent films having microphase separated morphol., indicative of block copolymers with incompatible segments. The tandem polymerization approach is based on normal and nitroxyl-mediated living radical polymerization. In contrast, poly(Bu acrylate) (pBA)- polystyrene prepared by polymerizing styrene in the presence of pBA yielded a brittle and opaque film having a morphol. of pBA droplets dispersed in polystyrene and no sign of microphase separation

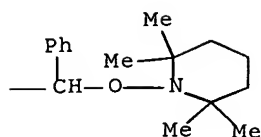
IT **188119-33-7P**
(radical **initiator**; preparation and morphol. of Bu acrylate-styrene block copolymer by normal/living tandem polymerization)

RN 188119-33-7 HCAPLUS

CN Pentanoic acid, 4,4'-azobis[4-cyano-, bis[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A





CC 35-4 (Chemistry of Synthetic High **Polymers**)

Section cross-reference(s): **36**

IT **188119-33-7P**

(**radical initiator**; preparation and morphol. of Bu acrylate-styrene block copolymer by normal/living tandem polymerization)

L69 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:436560 HCAPLUS Full-text

DOCUMENT NUMBER: 125:115236

TITLE: Photochemical synthesis of TEMPO-capped **initiators** for "living" free radical polymerization

AUTHOR(S): Connolly, Terrence J.; Baldovi, M. V.; Mohtat, N.; Scaiano, J. C.

CORPORATE SOURCE: Dep. Chemistry, Univ. Ottawa, Ottawa, ON, K1N 6N5, Can.

SOURCE: Tetrahedron Letters (1996), 37(28), 4919-4922

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 24 Jul 1996

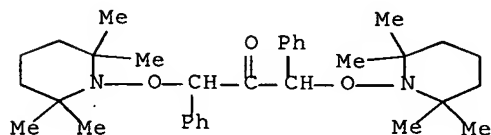
AB Two photochem. routes to stoichiometric **initiators** used in living free-radical polymns. are presented. These routes offer the advantages of higher yields and allow for the preparation of **initiators** not accessible using current methodol. All **initiators** gave detectable carbon centered radicals (laser flash photolysis) and promoted the polymerization of styrene.

IT **179417-97-1P**

(**catalyst**; photochem. synthesis of Tempo-capped **initiators** for living free-radical polymerization)

RN 179417-97-1 HCAPLUS

CN 2-Propanone, 1,3-diphenyl-1,3-bis[(2,2,6,6-tetramethyl-1-piperidinyloxy)]- (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High **Polymers**)

ST Tempo capped radical polymn **catalyst**; piperidinyloxy deriv radical polymn **catalyst**; styrene radical polymn **catalyst**

IT Polymerization **catalysts**

(living, radical, photochem. synthesis of Tempo-capped free-radical **initiators** for)

IT 179417-96-0P
(**catalyst**; photochem. synthesis of TEMPO-capped **initiators** for living free-radical polymerization)

IT 92952-55-1P
(**catalyst**; photochem. synthesis of Tempo-capped **initiators** for living free-radical polymerization)

IT 102261-92-7P 154554-67-3P 157462-14-1P 178625-99-5P
179417-95-9P **179417-97-1P**
(**catalyst**; photochem. synthesis of Tempo-capped **initiators** for living free-radical polymerization)

IT 9003-53-6P, Polystyrene
(preparation of; photochem. synthesis of Tempo-capped free-radical **initiators** for)

IT 70-11-1, Phenacyl bromide 110-05-4, tert-Butyl peroxide 781-35-1,
1,1-Diphenylacetone 958-79-2, 1,3-Dibromo-1,3-diphenyl-2-propanone
2564-83-2, TEMPO 2632-13-5, 4-Methoxyphenacyl bromide
(reactant; in photochem. synthesis of Tempo-capped **initiators** for living free-radical polymerization)

L69 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:734286 HCAPLUS Full-text

DOCUMENT NUMBER: 123:144710

TITLE: Architectural control in "living" free radical polymerizations: preparation of star and graft polymers

AUTHOR(S): Hawker, Craig J.

CORPORATE SOURCE: Almaden Res. Cent., IBM Res. Cent., San Jose, CA, 95120-6099, USA

SOURCE: Angewandte Chemie, International Edition in English (1995), 34(13/14), 1456-9
CODEN: ACIEAY; ISSN: 0570-0833

PUBLISHER: VCH

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 Aug 1995

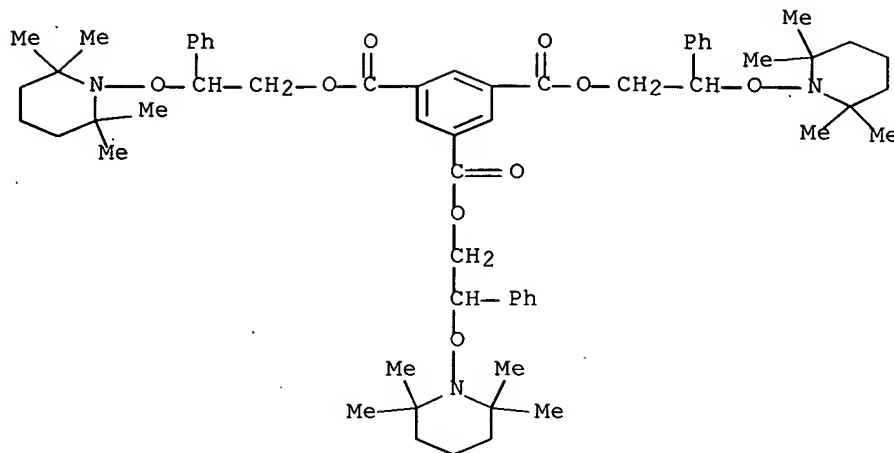
AB Living free radical polymns. based on TEMPO [2,2,6,6-tetramethylpiperidinyloxy] derivs. alloy for accurate control of macromol. architecture. Star and graft copolymers can be prepared from the appropriate multi-functional **initiators** with no crosslinking or termination by combination, even under melt conditions. The mol. weight of the arms, or grafts, can be controlled by varying the equivalent of monomer added while maintaining very low polydispersity. The 2,2,6,6-tetramethylpiperidinyloxybenzoate precursor underwent hydrolysis of the benzyl ester group to give the alc. Reaction of the alc. with 1,3,5-benzenetricarbonyl chloride in the presence of 4-dimethylaminopyridine produced the tri-functional **initiator**. Bulk polymerization of deuterated styrene with the tri-functional **initiator** produced the polystyrene in 84% yield. The polystyrene underwent hydrolysis with KOH and the hydrolyzed product has a mol. weight of 7600, which agrees closely with the theor. value for one arm of the star polymer [mol. weight 7000]. An analogous polymerization scheme was also developed to prepare graft systems.

IT **166983-62-6P**

(tri-functional **initiator**; architectural control in living free radical polymns. with TEMPO derivative functional **initiators** for star and graft polymers)

RN 166983-62-6 HCAPLUS

CN 1,3,5-Benzenetricarboxylic acid, tris[2-phenyl-2-[(2,2,6,6-tetramethyl-1-piperidinyloxy)ethyl] ester (9CI) (CA INDEX NAME)



- CC 35-3 (Chemistry of Synthetic High **Polymers**)
 Section cross-reference(s): **36**
- ST tetramethylpiperidinyloxy deriv functional **initiator** star
 polymer; graft polystyrene TEMPO **initiator**
- IT Polymerization **catalysts**
 (TEMPO-derivative **initiators**; architectural control in living
 free radical polymns. with TEMPO derivative functional
initiators for star and graft polymers)
- IT Polymerization
 (graft, living free-radical; architectural control in living free
 radical polymns. with TEMPO derivative functional **initiators**
 for star and graft polymers)
- IT Polymerization
 (radical, living free-radical; architectural control in living free
 radical polymns. with TEMPO derivative functional **initiators**
 for star and graft polymers)
- IT Polymers, preparation
 (star-branched, architectural control in living free radical
 polymns. with TEMPO derivative functional **initiators** for star
 and graft polymers)
- IT 1310-58-3, Potassium hydroxide, reactions 1592-20-7,
 p-Chloro-methylstyrene 4422-95-1, 1,3,5-Benzenetricarbonyl chloride
 81913-53-3
 (architectural control in living free radical polymns. with TEMPO
 derivative functional **initiators** for star and graft polymers)
- IT 161776-41-6P
 (architectural control in living free radical polymns. with TEMPO
 derivative functional **initiators** for star and graft polymers)
- IT 9003-53-6DP, Polystyrene, TEMPO-derivative terminated
 (architectural control in living free radical polymns. with TEMPO
 derivative functional **initiators** for star and graft polymers)
- IT 166983-64-8P
 (functional copolymer and macroinitiator for preparation of branched
 polystyrene; architectural control in living free radical polymns.
 with TEMPO derivative functional **initiators** for star and
 graft polymers)
- IT 166983-63-7P
 (functional graft monomer; architectural control in living free

- radical polymns. with TEMPO derivative functional **initiators**
for star and graft polymers)
- IT 9003-53-6P, Polystyrene
(star- and comb-branched; architectural control in living free
radical polymns. with TEMPO derivative functional **initiators**
for star and graft polymers)
- IT 166983-62-6P
(tri-functional **initiator**; architectural control in
living free radical polymns. with TEMPO derivative functional
initiators for star and graft polymers)

=> d his nofile

(FILE 'HOME' ENTERED AT 11:41:57 ON 24 MAR 2008)

FILE 'HCAPLUS' ENTERED AT 11:42:08 ON 24 MAR 2008

L1 1 SEA ABB=ON PLU=ON US20050215691/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 11:42:25 ON 24 MAR 2008

L2 57 SEA ABB=ON PLU=ON (100-44-7/BI OR 109-01-3/BI OR
109-54-6/BI OR 109-55-7/BI OR 121-44-8/BI OR 12172-85-9/BI
OR 12173-47-6/BI OR 12174-06-0/BI OR 12244-16-5/BI OR
12417-86-6/BI OR 1318-00-9/BI OR 1318-74-7/BI OR 1318-93-0/
BI OR 1319-41-1/BI OR 1592-20-7/BI OR 17639-93-9/BI OR
188526-94-5/BI OR 20769-85-1/BI OR 2226-96-2/BI OR
264279-93-8/BI OR 319458-08-7/BI OR 478697-26-6/BI OR
565450-32-0/BI OR 61745-37-7/BI OR 61746-17-6/BI OR
627-18-9/BI OR 639809-48-6/BI OR 639809-49-7/BI OR
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OR 998-40-3/BI)

L3 STR
L4 50 SEA SSS SAM L3
L5 STR L3
L6 6 SEA SSS SAM L5
L7 STR L3
L8 50 SEA SSS SAM L7
L9 STR L7
L10 50 SEA SSS SAM L9
L11 7221 SEA SSS FUL L9
L12 24 SEA ABB=ON PLU=ON L11 AND L2
SAV L12 KOL030/A
L13 30 SEA SUB=L11 SSS SAM L5
L14 694 SEA SUB=L11 SSS FUL L5
SAV L14 KOL030A/A
L15 STR L9
L16 50 SEA SUB=L11 SSS SAM L15
L17 STR L15
L18 12 SEA SUB=L11 SSS SAM L17
L19 240 SEA SUB=L11 SSS FUL L17
SAV L19 KOL030B/A
L20 6290 SEA ABB=ON PLU=ON L11 NOT (L14 OR L19)
L21 STR L9
L22 50 SEA SUB=L11 SSS SAM L21
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SAV L23 KOL030C/A

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L26 789 SEA ABB=ON PLU=ON L23

L27 6 SEA ABB=ON PLU=ON L12
 L28 1 SEA ABB=ON PLU=ON L27 AND L1
 L29 209 SEA ABB=ON PLU=ON L24 (L) PREP/RL
 L30 1 SEA ABB=ON PLU=ON L29 AND CLAY?
 L31 1 SEA ABB=ON PLU=ON L24 AND L25 AND L26
 L32 74 SEA ABB=ON PLU=ON L29 AND (PLASTIC? OR POLYMER?)/SC, SX
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 ACTIVAT?)
 L34 58 SEA ABB=ON PLU=ON L33 NOT L19

FILE 'REGISTRY' ENTERED AT 13:23:12 ON 24 MAR 2008

L35 STR L5
 L36 10 SEA SUB=L14 SSS SAM L35
 L37 198 SEA SUB=L14 SSS FUL L35
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FILE 'HCAPLUS' ENTERED AT 13:24:31 ON 24 MAR 2008

L38 96 SEA ABB=ON PLU=ON L37
 L39 40 SEA ABB=ON PLU=ON L34 AND L38
 L40 32 SEA ABB=ON PLU=ON L26 AND L25

FILE 'REGISTRY' ENTERED AT 13:26:02 ON 24 MAR 2008

L41 STR L21
 L42 STR L21
 L43 50 SEA SUB=L23 SSS SAM L42
 L44 1677 SEA SUB=L23 SSS FUL L42
 SAV L44 KOL030E/A

FILE 'HCAPLUS' ENTERED AT 13:32:30 ON 24 MAR 2008

L45 614 SEA ABB=ON PLU=ON L44
 L46 399 SEA ABB=ON PLU=ON L45 (L) PREP/RL
 L47 271 SEA ABB=ON PLU=ON L46 AND (PLASTIC? OR POLYMER?)/SC, SX
 L48 208 SEA ABB=ON PLU=ON L47 AND (INITIAT? OR CATALYST? OR
 ACTIVAT?)
 L49 1 SEA ABB=ON PLU=ON L48 AND L1
 L50 2 SEA ABB=ON PLU=ON L48 AND CLAY?
 L51 4 SEA ABB=ON PLU=ON L48 AND POF/RL
 L52 174 SEA ABB=ON PLU=ON L48 AND CAT/RL
 L53 6 SEA ABB=ON PLU=ON L52 AND MOA/RL
 L54 15 SEA ABB=ON PLU=ON L52 AND (PEP OR PYP)/RL
 L55 22 SEA ABB=ON PLU=ON (L49 OR L50 OR L51) OR (L53 OR L54)
 L56 13 SEA ABB=ON PLU=ON L25 AND L46
 L57 35 SEA ABB=ON PLU=ON L55 OR L56
 L58 6 SEA ABB=ON PLU=ON L39 AND ALKOXYAMINE INITIATOR?
 L59 40 SEA ABB=ON PLU=ON L39 OR L58
 L60 5 SEA ABB=ON PLU=ON L57 AND ALKOXYAMINE INITIATOR?
 L61 35 SEA ABB=ON PLU=ON L57 OR L60
 L62 26 SEA ABB=ON PLU=ON L45 AND ALKOXYAMINE INITIATOR?
 L63 26 SEA ABB=ON PLU=ON L62 AND (PLASTIC? OR POLYMER?)/SC, SX
 L64 56 SEA ABB=ON PLU=ON L61 OR L63
 L65 6 SEA ABB=ON PLU=ON L38 AND ALKOXYAMINE INITIATOR?
 L66 40 SEA ABB=ON PLU=ON L59 OR L65
 L67 10 SEA ABB=ON PLU=ON L64 AND L66
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 L69 30 SEA ABB=ON PLU=ON L66 NOT